



Fragmentary text on the left side of the papyrus scroll, written in an ancient Egyptian script (likely Hieroglyphs or Demotic).

Fragmentary text on the right side of the papyrus scroll, written in an ancient Egyptian script.

THE OXYRHYNCHUS PAPYRI VOLUME LXXX

EDITED WITH TRANSLATIONS AND NOTES BY
M. HIRT and
D. LEITH
and
W. B. HENRY

WITH CONTRIBUTIONS BY
D. COLOMO
N. GONIS
L. TAGLIAPIETRA

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A. BENAÏSSA
A. K. BOWMAN
G. B. D'ALESSIO
J. D. THOMAS
Advisory Editors

N. GONIS
D. OBBINK
P. J. PARSONS
General Editors

FOREWORD

In 1905, two German scholars, Karl Kallfleisch and Hermann Schöne, published a small selection of Greek medical texts on papyri. Their collection was followed, four years later, by a comprehensive survey of documentary papyri relating to medicine by Karl Sudhoff, the leading medical historian of the period.¹ Sudhoff's aim was to bring to the notice of the wider medical community the new information on medicine in the classical world that was being brought to light as papyri were being edited for the first time around Europe. Since then, and particularly over the last thirty years, many new texts have been published, and their relevance to wider medical history discussed in a variety of books and articles. This new volume of papyri from Oxyrhynchus, the first major collection of medical papyri from a single place, adds considerably to the number of published medical papyri, as well as offering new starting points for further research.²

At a local level, it amplifies Peter Parsons' magisterial account of medicine, health, and disease at Oxyrhynchus.³ It confirms the prevalence of eye diseases, fevers, ulcers, and haemorrhoids, but the patient is almost entirely absent except as the subject of doctors' medical reports in cases of wounding (5254-7) or as the owner, and possibly writer, of some of the lists of simple recipes published here for the first time. Similarly absent are traces of interaction with practitioners of traditional Egyptian medicine, such as is documented for Tebtunis, but this is hardly surprising in one of the most Hellenized cities of Graeco-Roman Egypt. A few Egyptian names appear among the authors of recipes, but the invention of valuable herbal remedies was never confined to the literate elite, let alone to the compilers of learned handbooks such as Heras of Cappadocia (5230), as the recipe obtained from Maximus the stone-cutter (5246) shows. The haphazard way in which remedies could be acquired, evinced in Galen's description of his own methods of collecting recipes, *Ind.* 31-7 (11.9-13.2 Boudon-Millot-Jouanna), is neatly exemplified here in remedies apparently copied from a learned source and others that are much simpler and more medico-magical in character (5245). It is precisely the enormous variety of healing practices found here that makes this volume a valuable resource

¹ K. Kallfleisch, H. Schöne (eds.), *Griechische Papyri medizinischen und naturwissenschaftlichen Inhalts* (BKT III; 1905); K. Sudhoff, *Abzählung aus griechischen Papyrus-Urkunden: Basisteine zu einer medizinischen Kulturgeschichte des Hellenismus* (1909). A second volume, edited by Wilhelm Crönert, was to deal with non-documentary papyri, including recipes.

² Earlier editions are listed by M.-H. Marganne, *Inventory analytique des papyrus grecs de médecine* (1981). Recent texts of importance include the four volumes edited by Isabella Andorlini as part of the project for a Corpus of Greek medical papyri ('Specimina' per il Corpus dei Papiri Greci di Medicina (1997)), *Greek Medical Papyri I-II* (2001-9), and *Tetti medici su papiro* (2004). Two online resources of relevance are Mertens-Pack², http://cip193.philo.uig.ac.be/Cedopal/MP3/dbsearch_en.aspx, where a 'subgenre' search for 'medicine and surgery' currently brings up 315 entries; and the more general <http://web.philo.uig.ac.be/cedopal/eng/medecine-dans-egypte-greco-romaine>. A recent survey of this material for non-specialists is M.-H. Marganne, 'L'apporto dei papiri letterari greci alla storia della medicina antica', *A&H NS II* 2 (2008) 238-59.

³ P. Parsons, *City of the Sharp-Nosed Fish: Greek Lives in Roman Egypt* (2007) 177-85.

for understanding the medical world of Graeco-Roman Antiquity. Even if not every town was as populous as Oxyrhynchus and few were so well connected to a major medical centre such as Alexandria, one might conclude that the range of medical ideas and practices available in an urban centre would still have been considerable, and would not have been confined to the small groups of learned medical secretaries whose intellectual theories have tended to dominate the history of medicine.

Some familiar names are to be found at Oxyrhynchus—Hippocrates (5219–23), Dioscorides (5224–6), and, in late papyri, Galen (5227–9), and the new papyri bring several valuable new readings as well as others that lend support to those of major manuscripts, most notably to the text of the Hippocratic *Prognostics*, 5223. 5220 is the earliest surviving example of a collection of different Hippocratic texts, common in much later manuscripts, and includes part of *The Use of Liquids*, a small treatise not always included in major selections from the Hippocratic Corpus. But among the pre-fourth century papyri edited here, these familiar authors are outnumbered by others, no less learned, who, save possibly for Heras (5230) and Heraclides (5231), cannot at present be identified. Some writers are acquainted with ideas on the importance of humours and bodily fluids, although it would be premature to call them Hippocratic, but others show a greater respect for Asclepiades of Bithynia (5236) and for Thessalus of Tralles (5235, cf. 5233–4) than one would expect from the vituperations of Galen. Asclepiades was certainly viewed as an important commentator by the author of the anonymous commentary on the *Epidemics* (5231), himself a learned man, and possibly to be identified with Heraclides of Tarentum, one of the greatest of all Hellenistic physicians. Indeed, it is tempting to agree with Galen that in his day, in the 170s, adherence to Hippocrates was far from common, *Opt. Med. Cogn.* 2.1 (CMG Suppl. Or. IV 47.15–17 Iskandar), although, as these papyri make clear, those who offered alternative theories were by no means the incompetents that Galen alleged, and they were far from united in their theories. Treatments involving complex surgery (5232) also serve as a reminder of the achievements of Hellenistic surgeons, and particularly those trained at Alexandria.

The type of medical document found in these new papyri is similarly varied. As well as expository tracts, there are several examples of a catechism form of question and answer (5235, 5238–9, 5241), a valuable didactic method, and one that would also have been accessible to the *philiatroi* who supported and employed doctors. 5251 is the only certain example from Oxyrhynchus of a medical text on parchment, a collection of recipes that can be compared with Galen's use of parchment notebooks into which to inscribe his remedies, *Ind.* 33, 37 (12.1, 12.21 Boudon-Millot–Jouanna). Historians of ancient pharmacy will also find new evidence for the ancient drug trade, as well as for the preparation of perfumed oils (5242).

In short, this volume, the largest single collection of medical papyri to be published, not only supports many of the approaches to ancient medicine that have developed over the last decades and supplements the textual advances made in the study of Hippocrates, Dioscorides, and Galen, but also prompts a re-evaluation of medical theory and practice in the Hellenistic and Roman periods.

V. NUTTON

PREFACE

The papyri edited in this volume by M. Hirt and D. Leith were studied in the research project 'New Medical Papyri from Oxyrhynchus', generously funded by the Wellcome Trust [grant number: 082230], and directed by N. Gonis and V. Nutton (University College London, 2007–10). A pilot project (2006–7), also funded by the Wellcome Trust [grant number: 079234], provided much of the groundwork, developing an idea originally conceived by V. Nutton and C. E. Römer.

Two workshops at UCL allowed closer study of a number of texts with the help of external advisors (I. Andorlini, R. Flemming, J.-L. Fournet, C. Magdelaine, M.-H. Marganne). Other texts were discussed by a larger group of experts at the British Academy workshop 'New Light on Ancient Medicine' on 17 May 2011. We are grateful to all participants for their comments and advice.

The final drafts were revised for publication by W. B. Henry; the volume has benefited enormously from his exacting scholarship and customary attention to detail. He also compiled the indexes and undertook the typesetting of the volume, a novel task carried out with accuracy and speed.

D. Colomo dealt with many imaging, conservation, and editorial issues with efficiency and promptness. A. Sarri and D. Bafa helped with the imaging at UCL.

It remains to express our sincerest gratitude to the institutions that made the research for this volume possible: the Wellcome Trust, the Arts and Humanities Research Council, and the British Academy.

December 2014

N. GONIS

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DC = D. Colomo
MH = M. Hirt

NG = N. Gonis
DL = D. Leith

WBH = W. B. Henry
LT = L. Tagliapietra

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NOTE ON THE METHOD OF
PUBLICATION AND ABBREVIATIONS

The basis of the method is the Leiden system of punctuation; see *CE* 7 (1932) 262–9. It may be summarized as follows:

αβγ	The letters are doubtful, either because of damage or because they are otherwise difficult to read
...	Approximately three letters remain unread by the editor
[αβγ]	The letters are lost, but restored from a parallel or by conjecture
[...]	Approximately three letters are lost
()	Round brackets indicate the resolution of an abbreviation or a symbol
{αβγ}	The letters are deleted in the papyrus
α̇β̇γ̇	The letters are added above the line
α̂β̂γ̂	The letters are added by the editor
{α̂β̂γ̂}	The letters are regarded as mistaken and rejected by the editor
∨	A space of approximately the width of an average letter is left blank

Bold arabic numerals refer to papyri printed in the volumes of *The Oxyrhynchus Papyri*. 'GMP' is used for I. Andorlini (ed.), *Greek Medical Papyri I–II* (2001–9). Otherwise the abbreviations used are in the main identical with those of the *Checklist of Editions of Greek, Latin, Demotic, and Coptic Papyri, Ostraca, and Tablets* at <http://papyri.info/docs/checklist>. An earlier version, now largely superseded, remains available at <http://library.duke.edu/rubenstein/scriptorium/papyrus/texts/clist.html>; J. F. Oates et al., *Checklist of Editions of Greek Papyri and Ostraca* (*RASP* Suppl. 9, 2001), is the most recent printed edition.

I. EXTANT MEDICAL TEXTS

5219. HIPPOCRATES, *APHORISMI* 5,35–7, 6,5–7

49 58.101/K(1–)e

2.7 × 3.5 cm

Third/fourth century
Plate I

A small fragment of a papyrus codex, with the ↓ side preceding the → side. The inner margin is preserved on both sides, on the ↓ side to a width of 0.4 cm. A line held about 29 letters and the column width will have been 8–9 cm, if allowance is made for the crowding of letters at line end. In W. H. S. Jones' edition of *Aph.*, there are approximately 4,350 letters between the end of the ↓ side and the end of the → side. These will have taken up 150 lines. There must then have been two columns to a page, each approximately 50 lines high; the present fragment will give the inner column on each side of the leaf. The column height will have been c. 25 cm. For papyrus codices with double columns, see Turner, *Typology* 35–7, adding e.g. LXXIII 4949, 5224 and 5227 are further examples.

The text is written in an informal hand with some contrast of thick and thin strokes: note e.g. in → 5 the thin crossbar and thick uprights of π or the thin left-hand branch and thick upright and right-hand branch of υ. ε has an extended crossbar; κ has extended branches; ρ is tall with a large loop; υ is Y-shaped with shallow bowl and tall upright. Letters may be written smaller at line end. Cf. e.g. XI 1358 (*GBEP* tb, MP³ 523), assigned to the third or fourth century; LIII 3696 (MP³ 1919.71), assigned to the later third or early fourth century; P Herm. 4 (*GBEP* 2a), of c. 317–323.

Transition between aphorisms was apparently marked by both high dot and paragraph, although they are not attested together in what survives (high dot at → 3, paragraphs below ↓ 4 and 6). This method of separating aphorisms is paralleled in a parchment codex of *Aph.*, P. Ant. I 28 (MP³ 543), although there it is also used to mark significant sense breaks within individual aphorisms.

Five other papyri of *Aph.* have been published: besides P. Ant. 28, there are P. Ant. II 86 (MP³ 544), III 183 (MP³ 543.3), P. Fay. 204 (MP³ 543.1), and P. Köln I 19 (MP³ 543.2). None overlaps the present fragment. For the indirect tradition on papyrus, see on 5232.

The papyrus provides ancient evidence for several passages where the later tradition offers variants. It omits insertions found in C' and in the indirect tradition at → 3 and 6, and has the truth at → 7 where C' and part of the indirect tradition have an inferior reading.

I am extremely grateful to Caroline Magdelaine for generously sharing with me her 1994 Paris thesis, *Histoire du texte et édition critique, traduite et commentée, des Aphorismes d'Hippocrate*. L. G. Westerink's edition of the commentary by Stephanus of Athens in *CMG* XI.1.3.3 (1995) has also been used. The direct tradition is represented by C', M, and V; the old Latin translation (lat), and the lemmata of the commentaries by Galen (Gal), Stephanus (Steph), and Theophilus (Theo) are also cited. For full details, Magdelaine's edition should be consulted, and for the indirect tradition, Anastassiou-Irmer, *Testimonien zum Corpus Hippocraticum*.

J. I

γυναίκε[ι υπο υστερικων ενοςχλουμένη
 η δυσ[τοκοουη ππαριος επιγενομε
 νος α[γαθον] γυναικι τα καταμνηρια α
 χροα κα[ι μη] κατα τα αυτα αιει γυγνομε
 να καθαρ[ις] δειξαι σημαιει: γυναι
 κι εν γαστ[ρι] εχουση ην οι μαθοι εξαι
 φηης ισχυ[λοι]

iv 544-5 L. = 438-5 Magdelaine

ηλευρησι

και εν σπλησι και εν τοις[ι] αλλοις
 ει μεγα διαφερουσι καταμνηρητων
 τα νεφριτικα και οκοσα κατ]α την κυστι
 εργωδωκ νυιαζεται τοις[ι] πρεσβυ
 τησι: αληγηματα κατα την κ[οιλιην] γιγνο
 μενα τα μεν μετεωρα κρυφα τα [δ]ε

iv 564-4 L. = 449-8 Magdelaine

1] [: a trace of the foot of a vertical above *v* in 2.2 ενοςχλουμένη restored with C'M Gal(MP) Steph Theo(UV). *δχλουμένη* is given by V^o.

3 η: Gal(M) has η καί.

3-4 επιγενομε]νος restored with M^o Steph Theo(UV). C' Gal(MP) have επιγενομενος.4 V^o Gal(MP) Steph Theo(UV) omit *τά* (restored here).4-5 α[γαθου]: Galen and Stephanus know a variant *χρόνια*, absent from the rest of the tradition.5 τα αυτα restored: C' alone has *τά* *από*.6 οι restored with M^o Theo(UV) for reasons of space. It is omitted by C', Gal, Steph, and the old Latin tradition, and Magdelaine (640) was inclined to consider it an innovation of M^oV^o and Theo(UV).

5-6 γυγνομε]νω: for the assumed spelling, cf. → 6.

7-8 The papyrus agrees with M Steph in placing *ἐξαιφνης* after *οι μαθοι*: in C' Gal(MP) Theo(UV), it stands before, and in V^o, *ἐξαιφνης* stands before.8 The papyrus will have had *ισχυ[λοι] γυνωται*: V^o alone has *γυνωται* *ισχυ[λοι]*.3 C' Gal(M) Theo(UV) have *μερσεν* after *αλλοις*; there is no room for it in the papyrus. Magdelaine

inserts (*τάς άρας*) in the same place, from the parallel passage *Epid. VI 7.11* (v 342.10-12 L. = p. 162; Manetti-Roselli), but notes (666) that the words will have been lost at an early stage, since Galen assumes the usual form of the text.

ει μεγα διαφερουσι restored with C'M^o Gal(MP). Steph Theo(UV) have *ην* *μεγα* *διαφ[ε]ρουσι*.

4 οκοσα restored with M Gal(P) on grounds of space. V^o has *οσα*, and C' Gal(MV) Steph Theo(U) *τά*; Gal(S) Theo(V) omit the word.

ηρη omitted by Theo(U).

After *κ[ο]κκ[ο]ν*, Theo(UV) has *δ[ι]αγ[η]ματα*.

5 *εργωδωκ* restored with M^o Gal(MP) Steph; C' Theo(UV) have *δυσχερα[ει]*.

5-6 *πρεσβυ[τη]τες* restored with M^o Steph Theo(UV). *πρεσβυ[τη]ροις* (C' Gal(MP)) is less well suited to the space.

6 *αληγηματα* restored; to judge by the space, the papyrus probably agreed with C' in omitting *τά* before *αληγηματα*, and with V^o Theo(U) in omitting *τά* after it.

The papyrus cannot have agreed with C' Theo(UV) in having *και οδ[η]ματα* after *αληγηματα* (cf. also 7 n.). As Magdelaine notes (666), the fact that Galen does not comment on the word, and its absence from the Latin translation, indicate that it is a late insertion, and its appearance in a different place in Steph (7 n.) points in the same direction.

6-7 *γυγνο]μενα*: as spelt in M^o Theo(U); *γυγ* in C' Gal(MP) Steph Theo(V).

7 Steph has *και οδ[η]ματα* after *γυγμενα*. There is not room for it in the papyrus (cf. 6 n.).

εργωδωκ with M^o Gal(M); *εργωδωκ* with P. *α* is a slightly sloping upright, not suiting ο. C' Gal(P) Steph Theo(V) have *κωφ[ε]τερα*, and lat(P/V) *λενιτες*; Theo(U) has *κωφ[ε]τερα*. Magdelaine (666) argues that the comparative was substituted in order to give a parallel to *ισχυ[ρο]τερα* in what follows.

D. LEITH

5220. HIPPOCRATES, DE ALIMENTO 48-51, DE LIQUIDORUM USU 1

32 4B.3/K(4-6)b

Fr. 1.3.6 × 8.9 cm

Second/third century
Plate I

Two fragments each giving part of a single column, with text running along the fibres. Fr. 1 preserves the right-hand margin to a width of about 0.5 cm, and the left-hand margin in fr. 2 is preserved to a width of 2.9 cm. The back is blank.

The text is copied in a medium-sized, informal round hand with some ligatures. There are right-pointing hooks at the feet of some uprights. *δ* is broad. *ε* appears once in cursive form (fr. 1.8). *v* is v-shaped or Y-shaped. Cf. e.g. the second hand of P. Köln III 143 (190), LI 3614 (200), XLIII 3100 (225), M. *Chr.* 211 (233).

There are corrections, apparently due to the hand of the text, at fr. 1.15 (supralinear addition) and 17 (expunction dots). A marginal *ancora* at fr. 2.9 indicates an omission made good in the lower margin: cf. 5232.11 37-8 with introd. A gendy ascending bar joined on its right by the lower end of the right-hand arc of a circle appears in the margin at fr. 2.14, and there is a smaller example of the same at fr. 2.10. WBH suggests that these are used in place of paragraphi to mark major divisions, noting that they are found in the two places in this stretch of text where Heiberg and Potter punctuate with a full stop. *η* is written for *ι* at fr. 1.4. There is no other evidence for the scribe's practice in relation to the use of iota adscript. No punctuation survives

within the text except a blank space at fr. 1.8 (see 8–9 n.). Elision is not marked at fr. 1.12.

The text of fr. 1 comes near the end of *Alim.*, and that of fr. 2 near the beginning of *Liqu.* Each fragment has between 21 and 27 letters to a line, with an average of 23. The end of *Alim.* would take up another 9 lines, and *Liqu.* will have begun 12 lines before fr. 2.1. If *Liqu.* began at the top of a column, the column will have held at least 29 lines and been at least 13.8 cm tall. Fr. 1 may have belonged to the preceding column, and there would be room at the foot of the column for a title. For rolls containing two or more short texts, see W. A. Johnson, *Bookrolls and Scribes in Oxyrhynchus* (2004) 143–4.

In Erotian's list of Hippocratic works, *Alim.* appears close to *Liqu.*, both being included in the category of dietic works: 9.15–17 *Nachmann* *εἰς διαίταν* ... *Περὶ τροφῆς, Περὶ ἀφρώων, Περὶ ὕδατων* (the last is an alternative designation of *Liqu.*: Anastassiou–Irmer, *Testimonia zum Corpus Hippocraticum* i 292–4). But when the works are arranged in the order in which Erotian read them, these two texts do not appear close together: see e.g. A. Roselli, *AION(filo)* 22 (2000) 179–84. The two texts are again close to one another in the *πύλαξ* translated by 'Ali ibn Ridwān (Anastassiou–Irmer, *Testimonia* iii 449–50), where *Alim.* is no. 11 and *Liqu.* is no. 13, and in the manuscript V of Hippocrates, where *Liqu.* is no. 24 and *Alim.* is no. 25 (CMG I.1.1.11), but they do not appear close together in the only mediaeval manuscript that includes *Liqu.*, A (cf. J. Irigoien, *RHT* 3 (1973) 9).

Other papyri with multiple Hippocratic treatises are limited to codices, namely P. Ant. I 28, III 184 and 185 (MP³ 543, 545.2, 539.1); the case of XXXI 2547 (MP³ 545.3) is uncertain (cf. ed. p.). No papyrus fragments of *Alim.* or *Liqu.* have so far been published, though P. Flor. II 115 (MP³ 456.22) preserves a commentary on *Alim.*, perhaps to be attributed to Galen (see most recently CPF 1.2* 18 Hippocrates 25T).

The text of *Liqu.* otherwise depends on A alone. *Alim.* is transmitted by A and M and in the Arabic translation by al-Bitriqī (Ar), a collage of lemmas from the commentary by Galen (so I. Garofalo, *Galenos* 6 (2012) 123), edited by J. N. Mattock, *Hippocrates: On Humours and Hippocrates: On Nutrition* (1971), with an English translation. Extracts from Galen's commentary preserved in Arabic are edited by Garofalo 123–64, with an Italian translation. There is nothing of particular note in the text of *Liqu.* But in *Alim.*, the papyrus is of considerable importance, as demonstrating that the familiar Greek text of this part is vitiated by numerous insertions made for the sake of clarity. It offers a superior text lacking these insertions in several places: cf. fr. 1.4, 10, II–14, 14–15, 15–16 nn. In two cases, the superior text was already known from the Arabic (fr. 1.4, 14–15 nn.), but the rest of the improvements are new. In two places (cf. fr. 1.3–4, fr. 2.9–10 nn.), there is corruption in the main text due to *sauit du même au même*, but in the latter case, the omission was made good in the margin, and the same may apply to the former, where the left-hand margin is missing. There are two new false readings: cf. fr. 1.8–9 n. (inserted article), fr. 2.14–15 n. (accusative for nominative).

For *Alim.*, the editions of Littré, of J. L. Heiberg in CMG I.1 (1927), of R. Joly in vol. vi.2 of the Budé Hippocrates (1972), of W. H. S. Jones in vol. i of the Loeb Hippocrates (1923), and of K. Deichgräber, *Pseudhippokrates Über die Nahrung* (1973), have been consulted, and for *Liqu.*, those of Littré, Heiberg, Joly, and P. Potter in vol. viii of the Loeb Hippocrates (1995).

Fr. 1

(ix 116.15–118.11 L = 84.7–17 H = 146.20–147.10 Joly)

καθ ἡλικίᾳ]ν καί
 ἐμφῶνα και διαφῶν]α κ[α]ι νου
 σου και γνέστης σμη]η]ς και νουσου
 μάλλον η γνέστης τροφῆ]ς και πρεσ
 5 μα ὕγρη τροφῆ] ἐμμεταβλήτος
 μάλλον η ξηρῆ] ἔξηρη τροφῆ] εν
 μεταβλήτος] ἢ μάλλον [η υγρη
 η δυσκαλλωτος] ἢ η δισεξ[ε]να
 λωτος η ευπρο]σθετος ευ[ε]ξα
 10 ναλωτος ὀ ταχ]εῖς προσε[ρ]σιος
 δεονται υγρον ἵ]γμα ες αυ[α]λη
 ψιν ὀ ταχ]υτερη]ς δι σφρη]σιος
 βραδυτερης προ]σθεσιος δε[ο]ν
 15 ται στερεη τροφῆ] μεις στερε[ω]
 τεροι δισεκ[τ]ή]τοι τα γ[ε]υσι
 μακμενα κατα] χενος αυτα [ε
 ωτων ισχυροτερη του ἴ]τε] ο[ι]ν

Fr. 2

(vi 118.7–15 L = 85.7–14 H = 164.8–17 Joly)

μα [εφ]ελκωται θερμω αιση
 εις π[ι]νθη του σωματος απαντος
 η μελρος δερματος σκληρον
 5 μαλλ[α]ξι συνταμενον χα
 λασι γλευρον σαρκων εκχυμω
 εις ἰβ[ε]ρωτων αθροος υγρηται προ
 κλησαι οιον ρινας κυστιν φουcas
 σαρκ[α]ς αυτα π[α]λυσια τηξαι μι
 10 νυθη]σαι χρονην
 ὀ υ]στρικου και κατα κεφαλη
 και [α]λλων σπασμων τετανων
 παρ[ι]τηροικων οδυνας κωφωσ ω
 15 τος σφ[ι]θραλων οσα τοιαυτα
 ὀ τα ψυχ[ρ]α θερμηται οιον πιc
 σαν ελκε[ρ]εισ πλην τοισιν αι
 μορραγε[ρ]εισ η μελλουει και
 τρη]μασι

Fr. 1

1 καθ ἡλικίᾳ]ν καί. Ar appears to translate instead και φλεβῶν.

3–4 σμη]η]ς και νουσου I [μαλλον η γνέστης. M has σμη]η]ς και ὕγρητης μάλλον ἢ νούσου και νούσου μάλλον ἢ γνέστης, while Ar omits these words by *sauit du même au même*. The text of the papyrus also seems to be the result of a *sauit du même au même*.

4 τροφῆ]ς: τροφῆ γάρ codd. Ar appears not to have had γάρ καί. ἢ η for ἢ is no doubt a trivial error (cf. e.g. 5233 II 4), but the γάρ of AM is likely to be an intruder, inserted in order to remove the asyndeton: the word is not found elsewhere in *Alim.* and does not seem in the author's manner (WBH).

8–9 η δυσκαλλωτος] ἢ η δισεξ[ε]να]λωτος: ἢ δυσκαλλωτος δισεξ[ε]να]λωτος codd., Gal. *Hipp. Arb.* 2.18 (text B 89.4 K). ἢ The blank space signifying punctuation and the article are no doubt due to assimilation to the preceding ἢ δυσκαλλωτος at the start of a sentence' (WBH).

9–10 η ευπρο]σθετος ευ[ε]ξα]λωτος om. AA.

10 Before ταχ]εῖς. M has και ὄκωτος (cf. Ar, and the Galen testimonia in Anastassiou–Irmer, *Testimonia* II.1 and 2, which offer ὄκωτος, Wer, ὄκος γάρ), but the space will not accommodate it here. Cf. II–14 n. below for discussion.

11–14 υγρον ἵ]γμα ... δε[ο]νται. M gives ὄκωτος ἵ]γμα ἐ ἀνάληγον δύναμιος κράτιστον ὄκωτος δε[ο] δὲ ἐπι ταχ]υτερης, δι' ἀσφ[ι]ρη]σιος ὄκωτος δι' βραδυτερης προκ[ε]τιστος δε[ο]νται. 5220 appears to have had the same mate-

rial more concisely expressed: there is no room for (a) *δυνάμειος κραιπνότερον* after *εε ασ[αληθ]ιν*, (b) *σοσοί δε ετι* before *ταχυνεργ[ε]*, or (c) *σοσοί* δε before *βραδυνοτρις προ[σ]θε[σ]ις*. For the absence of relative and connective in (b) and (c), cf. the assumed absence of *και δόσοι* before *ταχ[ε]ργ[ε]* (10).

Cal. Hipp. *φθ*. 2.1 (viiiB 467-6-9 K) offers a text close to that of M, with at (a) *δυνάμειος άριστον*, and at (b) *δκου δέ ετι*. Ar is also close to M. Ar has a gabled text, *δ' εφ'εφ'ερος ταχυνεργ[ε] θυρον ηημα τρέφει* (φ-ρ.c.) *εφ'εφ'ερος* (corrected to *εση*- by Ar).

The missing relatives and connectives in 10-14 are unnecessary: cf. for the style e.g. *Λίβη*. 1 (fr. 2.1-2; vii.87. L = CMG I.1 85; 7 Joly) *αυτή τδ δερμα εφ'εφ'εκοντα θερμα αλοησεις*, where Litré supplied (c) before, rightly not adopted by Heiberg; or e.g. Call. *Hy*. 6.84-6. They may have been added for clarity. The same may apply to point (a). There is no mechanical explanation available for any supposed omission' (WBH).

14-15 *μικς σφειλοειροι δυσκ[ε]τη κ'τοι*, *δυσκ[ε]τητος* is due to Cornarius (cf. Ar 'become exhausted and wasted less quickly'): M has *δυσκ[ε]τητος*, A *δυσκ[ε]ται*. M and A continue with *των άλλων παρεξ δένου και νιτρος*, but the phrase is not present in Ar or 5220, and it may have been inserted to explain the use of the comparative degree. *παρεξ και παρεξ* are not found elsewhere in the Hippocratic Corpus according to the *Index Hippocraticus*. (Previous editors, working from the longer text, emended to account for the genitive *των άλλων*: Litré inserted *μύλλον* before it, while W. A. Heide (*HSCP* 25 (1914) 193), followed by Heiberg and others, suggested that 'δύσκτητος (or whatever form we here accept) is a gloss on *σφειλοειροι*!')

15-16 *τα γε[γ]ωμεγεμενα*. AM give *δυσκ[ε]ταβλητα* (to om. A) *γεγωμεγεμενα*. At offers 'they do not tire when enatiated and do not become fatigued' in this place, which does not correspond closely to the text of AM. 'δυσκ[ε]ταβληγ[ε]' may have come in as a gloss on the immediately preceding *δυσκ[ε]τητος*, or the termination adjusted to suit the context' (WBH).

17 *του ε[σ]τι* *σ[υ]ν[ο]υ*. *σ* is represented by the left-hand arc of a circle. The papyrus thus seems to have agreed, after correction, with AM in giving *του δόντος*. Litré, however, emended this to *έόντα*, and was followed by Jones and Joly, while Heiberg was satisfied with the transmitted text.

Litré's emendation *έόντα* is only syntactically possible if *δυσκ[ε]ταβλητα* is present in the text as the predicate: *δυσκ[ε]ταβλητα τδ γεγωμεγεμενα, κατά γένος αυτά έωντιας ιεχνηρότερα έόντα*. If *δυσκ[ε]ταβλητα* is an intrusion, as this papyrus suggests, then *κατά γένος αυτά έωντιας ιεχνηρότερα του δόντος* will be the predicate. If Litré's emendation were adopted, the sentence would be left without a predicate. *του δόντος* is still problematic. Deichgräber prints his own conjecture *του δένου*, which is not too far from the assumed reading of the papyrus before correction (*του γε δόντος*), but does not solve the problem of the double genitive of comparison, noted by Litré' (WBH).

Fr. 2

1-2 *αιωη[ε]σις*. A gives *αιωησις*, while Erotian a 48 (181 N) has *αιωησις*. The second hand of A emended to *αιωησις*, which is adopted by Heiberg and Joly. Litré and Potter print the noun *αιωησις*, although Potter translates you will moisten'. There is no instance of Itacism in what remains of the papyrus text (cf. fr. 2.5, 6), and it thus appears to agree with Erotian.

6-7 *προ[σ]κλυ[ε]σαι*. Potter reports *-αληγ* as the reading of A, noting that *προκλυσαι* was proposed by Foer after Cornarius' *proclivitas*. The final trace in the papyrus is on the line and could suit either *υ* or *η*.

9-10 *As* text is too long for the available space: ... *μυθησις, χρουν ανασκεδαις, χρουν ανασκεδαις, δονου και κατά κεφαλης και άλλων*. Apparently either *χρουν ανασκεδαις* or *χρουν ανασκεδαις* was omitted in 9; WBH suggests that it was the former, by *auti du moute au mme*. The *ανασκεδαις* opposite 9 then must have signalled the text to be restored.

10 To the right of the marginal divide, a further trace on a damaged patch to the right at a higher level. 14-15 *π[ε]σις*: *π[ε]σσα*. A. According to the papyrus' reading, the meaning will be that pitch is an example of the cold things that warm water can heat, for lesions etc. According to *As*' reading, pitch can heat cold things as warm water can. ('But pitch would be a rather unexpected example of something that is "cold" (why?) and to be warmed by means of water, whereas it is natural for the use of hot water in warming what is cold to be

compared to that of pitch. The corruption in the text of the papyrus may be due in part to the analogy of the accusatives in *προκλυσαι ολον μινυς κτα*, just before (6-7) (WBH.)

D. LEITH

5221. HIPPOCRATES, DE MULIERUM AFFECTIBUS I 1.8-14

27 3B.42/E(7)B

6.5 x 5 cm

Third century
Plate I

A fragment from the same roll as P. Köln VII 311 (CPF L.2* 18 Hippocrates 10), the provenance of which was hitherto unknown. N. Gonis, *APF* 37 (2011) 4 n. 1, lists other manuscripts represented both in the Cologne collection and among the papyri recovered by Grenfell and Hunt at Oxyrhynchus. The new piece, written against the fibres on the back of an account, of which the text runs in the same direction, gives parts of 21 lines of a column, with right-hand and lower margins preserved, the latter to a depth of 2.6 cm. The cursive hand is comparable to such examples as SB XVI 12785 of 220.

Sense units are divided by dicolon (9, P. Köln 311.3) and midline dot (8, 21). Corrections have been made by the first hand above the line, apparently at 4 and certainly at 15, and a marginal note (correction or gloss) added in the right-hand margin at the level of 21. Initial *ι* and *υ* receive a diaeresis at 12, 14, and 20. There is the left-hand end of a horizontal stroke in the right-hand margin just above the level of line 17. It is too far left to belong to the text of the next column, but it may represent a paragraphos, for example.

A line holds 28-36 letters. The transmitted text of *Mul. I* would fill some 28 lines of this length before the first line of 5221. The half-way point between the beginning of the treatise and the end of the column in 5221 would fall within the lines preserved on the Cologne fragment. Both fragments must therefore come from the same column, the first of this treatise, and it must have held approximately 49 lines, giving an approximate column height of 28 cm.

The first editor of the Cologne fragment, identifying the remains of line 1 as representing *καθα[σ]θησα[ι]* (viii 10.15 L = 88.13 Grensemann), suggested that 32 letters, equivalent to one line, had been lost between the first and second lines of the fragment. If such a loss is assumed, the column will have had only 48 lines. But the proposed reading is not acceptable: *θ* cannot be read. The remains of the second letter consist of an upright curving to the right at the foot, from which a diagonal rises to culminate in a small loop, which then joins the top of the vertical of *η*. This may suit κ best (cf. in 5221 κη and 8 κε at 12). The vertical of the first letter extends far below the line, and must belong to *ι*, *ρ*, or *φ*. We expect here part of the sequence *οίσει η ε[ι] άτοκος ην* (viii 10.16 L = 88.14 G.). I have considered supplying *οίσει: κην ά[τ]οκος η*, though this would give the wrong sense. (One might compare the false variant *ετην* for *η* ε[ι] (viii 12.2 L = 88.20 G.), but there the influence of an earlier passage has caused the corruption: cf. 4 n.)

The only other papyrus witness to *Mul.* published to date is the sixth-century codex P. Ant. III 184 (CPF L.2* 18 Hippocrates 9 and 12), which also contained *Superf. P.* Ant. 184 fr.

4(a) overlaps with 5221 16–19. The mediaeval manuscripts are ΘΜV; there is also Lat (the Latin translation) up to the end of section 13 (line 19 in the papyrus).

The text is of some interest. Considerations of spacing suggest that the papyrus after a text superior to those of other sources at 14–15 and 17, and a possibly correct variant at 5. On the other hand, the text at 3–4 appears to have suffered from a *saut du même au même*. There is a problematic new reading at 8, and an inferior reading appears to have been offered in the lost part of 21, but the correct reading is given in the margin; similarly at 4 the correct mood may have been restored above the line. As regards dialect, the papyrus has εὐσείων (5), χωρείε (6), and τούτου (11).

Collated with the edition of H. Gresenmann, *Hippokratische Gynäkologie* (1982). A. E. Hanson's edition, in her dissertation *Studies in the Textual Tradition and the Transmission of the Gynecological Treatises of the Hippocratic Corpus* (1971) 133–5, has also been consulted.

υπερτονε]ως[ιν : ατοκου

viii 10.20 L. = 88.18 G.

δε εουση του τε εωματος ου ξ[ιν]ηθεος εον
 5 τος επην πληρωθη ις]χυρ[ου] η κ[ι]α ε]τερε]ωτε
 ρου εοντα η ει λοχιων] εμπειρ[ου]ς γενητ[ρ]α [ι
 των μητρων αστωμ]τερων εουσεν τα [ι
 καταμνηρια επιπονυτ]ερως χωρειε και τα [ι
 παθηματα προσπτε]ι πλειονα ωστε τα [ι
 καταμνηρια αποφρασε]εθαι : επην ατοκηση [ι
 10 εχει δε ωδε ακ μοι και π[ι]ρην ειρηται : φημι [ι
 την γυναικα αραιοσα]ρ[κ]ι[ο]τερην και απαλυτε [ι
 ρην ειναι η τον ανδρ]α : και τουτου ωδε
 εχοντος απο της κοιλης ελκει την ικμιαδα
 και ταχιον και μολ]λον το εωμα της γυναι
 15 κος η του ανδρος κ]αι γαρ ει τις υπερ υδατος
 η και υδρηιου δυο] ημερας δυο ενφρακα
 βειη ειρια καθαρα κ]αι ε]μα καθαρον και βε
 βυσκμενον ευ ισο]ν τοικιν ειριουκιν ανε
 λων ευρησει ετ]η]σας πολλον βαυτητα
 τα ειρια η το εωμα οτ]ι δε τουτο γιγνεται αιει
 20 αποχωρειε ες το ανεκ]ας [α]π[ρ]ο του υδατος [ε] η αγ
 γεω ευστωμ εουτο]ς : και τα μεν ειρη[ι]α

επυρτο
 μαι

3 κ]ιχρη]ο[ι]η και εχρονουρου τε M.

3–4 ε]τερε]ω[τε]ρου εουτος. To judge by the space available, και πυκνονουρου, given by the other manuscripts, will have dropped out before εουτος (*saut du même au même*).

4 γενητ[ρ]α]ι with V: γένουτο rell. The supralinear traces may be the remains of οη, indicating the restoration of the optative by a corrector. M has επην before λογικων, while the rest have η ε, which must be right on grounds of sense. επην may have come in from *Med. 1.15* (viii 10.13–14 L. = 88.11–12 G.) δεην λογικων ημετερος γένουται: the same applies to V's subjunctive γένουται, which is ungrammatical after η ε. The papyrus may have had the correct η ει in the gap, along with γενητ[ρ]α]ι, as in V, or επην, as in M, which would account for the subjunctive but give the wrong sense.

5 των μητρων αστωμ]τερων. The mediaeval manuscripts have και before ταν, but WBH notes that there is not room for it in this copy. Then M has διαστοματερωσ φοτ εστοματερωσ.
 εουσεν: 30 Θ. MV have εουσειν.

6 καταμνηρια restored with V (on grounds of space): εμαρνια ΘM. The manuscripts all have καταμνηρια later in this sentence, but the two compounds are used apparently interchangeably throughout *Med.*, and the tradition is often divided: V also stands alone, e.g., at *Med. 1.29* (viii 18.16 L. = 94.1 G.) and 6.1 (viii 30.6 L. = 100.1 G.), while M is alone at 9.1 (viii 38.7 L. = 106.11–13 G.).

8 ατοκηση [ι : ερωκος η codd. The verb ερωκος is otherwise only attested (twice) in Ph. *Hes.* (i 478.16, 480.25 M. = iii 9.18, 13.4 W.). WBH notes that the tense would be surprising.

9 π[ι]ρην. So MV: π[ι]ρηναν Θ (*prima* Lat). In the earlier part of the line, V's εσκειν (for εσ) would be too long for the space.

11 τουτουε with Θ: τουτου M.

14–15 υπερ υδατος [ι] η και υδρηιου. υπερ υδατος η και χωριου υπερηλυθ Θ: υπερ υδατος και διαχωριου υπερηλυθ M: υπερ υδατος υπερηλυθ V: <sw>per aquam vel nisi aquam Lat. G. prints υπερ υδατος η και διαχωριου υπερηλυθ, noting Galen's gloss (on this passage?) διαχωριου απο διαστρωματος (*Gloss.* [ix 23.2 K.]), and suggesting (on the basis of Lat) that υπερηλυθ is a corruption of υπερηλυθ (p. 149). The space will not accommodate G's text in full, and WBH suggests that διαχωριου (M) or χωριου (Θ), which has nothing corresponding to it in the Latin, may be intrusive: 'perhaps it was inserted in order to make it clear that the material should not touch the water but be kept at a distance'. The text is provisionally supplied above in accordance with this hypothesis.

It is not clear whether or not υπερηλυθ had a diaeresis on its first letter.

17 εω ισο]. εεεεεεεεεε (μωο M) εω ΘMV: ponderiam Lat. G. prints εεεεεεεεεε [εω]: cf. below. The *Index Hippocraticus* s.vv. εεεεεεεεεε, εεεεεεεεεε suggests that the reading of ΘV should be taken as εε, εεεεεεεεεε. Building on this, WBH argues that εεεεεεεεεε is a later insertion (to clarify εω), and that the truth is εε, [εεεεεεεεεε] being too long for the space. A. E. Hanson, *Pap. Congr. XII* (1970) 217–18, proposed substituting εεεεεεεεεε, which Cordatus had conjectured in this passage on the basis of Gal. *Gloss.* [ix 14.16 K.] εεεεεεεεεε εεεεεεεεεε. WBH suggests that εω ισοω stood in that papyrus as well, and that Galen's εεεεεεεεεε is taken from somewhere else.

18 πολλων. So ΘM: πολλω V, P. Ant. 184 fr. 4(a).

20 ανεκ]ας : ανεεεεεεεεεεε V.

του: om. V.

20–21 ε]ρ]ω]σ]ι] γεω εουστωμ. The other manuscripts give εουεεεεεεεεεε after εουεεεεεε. In this copy it has been added in the margin by the hand of the main text, as correction or gloss, and the word written in the body of the text was εουστωμ: to judge by the space available, WBH suggests that it was εουστωμ, and this has been provisionally supplied above. For confusion of εω- and ερω-, WBH refers to his note on *Pind. Nem.* 4.11f. *Αλαριδων* [ι] εεεεεεεεεεω εωε (West's emendation), where he compares for the corruption *Pind. Ol.* 1.73 *Εβ* [εω]εεεεεεεεεε (corr. Moschopoulos). A. R. 4.269 εεεεεεεεεεεε (Meineke: εεεεεεεεεεεε codd.). Q. S. 12.324 εεεεεε (Rhodemann: εεεεεε codd.), 246 εεεεεε (Köchly: εεεεεε codd.), εεεεεεεεεεεε is attested, but not in the Hippocratic

Corpus, and *επιέστημεν*, attested five times in the Hippocratic Corpus, will be correct.
αερωλε: *είωμε* MV. There is a tracer high in the line, apparently the top of a stroke descending from left to right: not *ι*, but consistent with *ε*.

D. LEITH

5222. HIPPOCRATES, EPIDEMIAE I CASE II

63 6B.69/C(3-5)b

4.1 x 4.5 cm

Second/third century
Plate I

A small fragment preserving parts of 8 lines of a column, broken on all sides, with text running along the fibres. The back is blank.

The text is written in a formal upright hand. The hand is generally bilinear except that *υ* descends below the baseline. The feet of verticals are sometimes decorated, and there are often small hooks at the tops of obliques in *α* and *λ*. *ο* is tiny; *ε* has a short crossbar and may have a markedly extended lower arc terminating in a small dot, as also in *ε*; *μ* has straight sides; Y-shaped *υ* has a broad shallow bowl; *ω* is virtually flat in the middle. There is a marked contrast between broad and narrow letters. IX 1174 (*GMAW*? 34), assigned by Turner to the later second century, is in a similar style.

A line filler is used at 2 (and one might be expected in a lacuna at 5). *εε* is used for long *ι* (8, restored at 6).

This is the first published papyrus of *Epidemiae I*; 5231 preserves an unidentified commentary on the treatise (to which 5222 could in principle belong). There are published papyri of *Epid. II*, *Epid. III*, and *Epid. VII*: see CPF 1.2* 18 Hippocrates 14-16 (MP³ 537.4, 538, 538.α).

The text is accurate as far as can be determined. In three places (see 3, 7 nn.), it agrees with the remainder of the direct tradition (represented by A and V) against the lemmata of Galen's commentary ('Gall' in the notes). There is one new reading (3 δε).

The text has been collated with the editions of H. Kühlewein, *Hippocratis opera* I (1894), and Littré (vol. II, 1840). Galen's commentary is edited by E. Wenkebach (*CMG* V.10.1 (1934)). I am very grateful to Prof. Jacques Jouanna for advice on the tradition.

διψωδ]ης ααωδης ου[
 ρα ομ]οια απο δε κοιλι >[
 ης ου]θεν περι[ι] δε μεσον [
 ημερ]ης πολλα παρα]εκρο]υ
 5 *σεν και] παλιν ταχυ [
 εμεικρα] κατεφει αν[
 σταμιν]η υπεκαρωθη [*

ii 710.5 L. = 1 212.8 Kx.

ψωξε ε|μεικρα]α

- 1 ααωδης with AGall.: om. V.
 2 δε om. AVGall. For divergences in omission and inclusion of δε in *Epid. I* case histories, see 3 n. and 5231 i, 1, 5, and ii 10.
 3 δε with AV: om. Gall.
 μεσον with AV: μεσης Gall.
 5-6 The space calls for -σεν rather than -σε at the start of 5 and εμει- rather than εμ- (cf. 8) at the start of 6.
 7 υπεκαρωθη with AV: υπεκαρωθη Gall.
 8 ε]μεικρα]α: I. εμειρα.

D. LEITH

5223. HIPPOCRATES, PROGNOSTICUM 7.10-II

5 1B.57/C(1)
II₂₁ Jouanna

6.8 x 16.6 cm

Later first century
Plate II

The lower part of a column, with remains of 20 lines written along the fibres. The lower margin is 4.5 cm deep, and the left-hand edge of the right-hand margin is preserved in part. On the back, near the top, there are two damaged lines of text running in the same direction as the text on the front. A line contained an average of 19 letters, and the original column width was about 7 cm.

The main body of the text is written in a rather untidy and irregular round hand. Bilinearity is breached principally by *ρ* and *χ* below and by *φ* above and below. The loop of *α* may be round or pointed. In initial position, after the gap in 8, it is enlarged, with its pointed loop extending below the line, while in the second example in 17, the tight round loop does not touch the oblique. The second oblique of *δ* projects beyond the apex. *ε* is generally made in three movements (upright, cap, and crossbar) and loses its turn-up, especially in the more hastily copied lines towards the foot (cf. e.g. the first example in 16, in which the three strokes do not touch); but in 20 (first), the cap and crossbar are made in a single movement. The branches of *κ* tend to join the upright loop down, and the lower branch is almost flat. *μ* is rounded, with a deep saddle. The oblique of *ν* projects to the left and joins the second upright near the top. *ξ* has a long tail at 15, but not elsewhere. The two halves of *ο* are often inexpertly attached, as at 18 (first), and the right-hand arc may be reduced to an oblique, as at 12 (first); cf. the circle of *φ* (19). *π*, with its crossbar projecting to the left, has curved sides in the more carefully written part (e.g. 3), but straight sides towards the foot (e.g. 18). *ρ* has a tiny loop and its tail turns to the right at its tip. The cap of *ε* tends to be extended downwards on the right (e.g. 5). *υ* may be looped at the base or made of a short arc and an upright joining with a loop at the top right-hand corner (12, first). *ω* is also variable. It may be well-rounded and carefully joined, with a

high central cusp (15), or reduced to three clearly separated strokes: an arc on either side and an oblique for the base of the second loop (16). Most letter forms can be paralleled in documents of the second half of the first century. Cf. e.g. I 39 of 52, esp. for α, κ; P. Lond. II 260 (Kenyon, *Palaography* Pl. V) of c. 75, esp. for ν, ς, and the long ξ; also II 249 of 80 for α and ε (e.g. at 14) with their component strokes clearly separated. A scribblerary text with some similarities is III 466 (columbia.apis.p356), assigned by Cavallo to the first century (*Il calamo e il papiro* 228).

The text has been corrected extensively, in at least one case by a second hand. At 8, the scribe deliberately left a space blank, perhaps because he was unable to read his exemplar or because it was damaged or defective. The missing word was later inserted in a different, sloping hand, but the scribe had overestimated the length of the word, and part of the space remains unfilled. The corrector apparently had access to a second copy. For similar cases, cf. e.g. LIII 3710 i 44 with n.; LXXIX 5197 introd. Deletions are executed by means of cancel strokes (14, 18; cancel stroke and expunction dot: 6). A deleted letter is corrected, and omitted letters are added, above the line (14; 6, 17).

A rough breathing is found at 14 and an acute accent at 5 (cf. n.). High dots or short obliques accompanied by blank spaces of various lengths are used as punctuation (5, 7, 11, 13, 20). In 13, a middle stop is placed between subject and predicate to clarify the structure, and a high oblique at the end of the sentence: cf. e.g. XV 1809 (*GMAW*³ 19), Iota adscript is written (15-ω). A superfluous ι is added to final α (6) and ω (18): cf. Gignac, *Grammar* I 194, 185. In both cases, the letter has subsequently been deleted. There is unmarked elision at 16. Line fillers may have been used at 13, 15, and 17: cf. nn.

The parchment codex P. Ant. I 28 (*It.*, Jouanna, MP⁹ 543; CPF L2* 18 Hippocrates I + 21), assigned to the fifth century by P. Fabrini and D. Manetti (CPF L2* p. 78), is the only other ancient copy of *Prog.* published to date. The preserved part has on one side the end of the treatise (24-5), and on the other the beginning of *Aph.* Among Egyptian papyri, the indirect tradition is represented by P. Tebt. II 678 (*It.*, Jouanna, MP⁹ 2368; GMP II 2), a medical treatise that borrows material from *Prog.*

There are several new readings. αωκυρτου[ι]α eva at 12-13, hitherto only known from Galen's commentary, is attractive: cf. 10-11 n. New readings at 6, 11, 12, 14 (twice), and 19-20 are of more doubtful value. A previously neglected variant at 19, shared with M, has now been adopted by Jouanna. 'Ionic' forms are not used consistently: contrast e.g. εφρηα (11) and οσφοα (13) with μηθεv (15) and οσα (7).

I am indebted to Prof. Jacques Jouanna for his generosity in sharing with me in advance of publication the relevant material from his Budé edition of *Prog.* (2013), where the significance of 5223 is discussed on pp. ccxiii-vi. The direct tradition is represented by C¹M¹Lati; Gall. indicates the lemmata of Galen's commentary. The notes provide a collation with Jouanna's text; for full information about the tradition, his apparatus should be consulted.

Besides Jouanna's edition, those of Littré (vol. II, 1840) and B. Alexanderson, *Die hippokratische Schrift Prognostikon: Überlieferung und Text* (1965) and the latter's *Textkritischer Kommentar zum hippokratischen Prognostikon und Bemerkungen zu Galens Prognostikonkommentar* (1968) have been consulted.

] [. . .]
 8] ε χρη των οιδημα[ων
 χ]ρ[ι]σ[ι]ν[ο]ν[ο]ντων πε[ρ]ι τ[η]ν αυτα
 τ]α χωρια υποκεπητ[ε]βαι τας
 5 ε]μνησ[ι]ας τ[α] δε δ[ι]στα[ρ]τη
 η]ματα[ι] ωδε χρη ρυ[ρ]ιευ
 τ]α εντεθεν οσα μεν ε[ξ]ω
 (m. 2) τ]ρησεται * * * * * (m. 1) αριστα ε[στ]ιν
 ω]ς μάλιστα εκκλονο[ρ]τα
 10 κ]αι εις ο[φ]θ[α]λμ[ο]ν [. . .]
]α τα δε μεγαλα τε εφρα
 κ]αι ουκ εις ο[φ]θ[α]λμ[ο]ν αποκυρτου
 μ]ενα κακιστα οσφα δε [ε]
 15 σ]ω] ρηγηνη[ι]ται αριστα α τρω[ι]
 ε[ξ]ω χωρια μηθεv ε[στ]ι
 κ]ωνανει αλλ ε[στ]ι προς
 ε[στ]αμενα τε και ανωδ[υ]
 ν]α και παν το ε[ξ]ω[ι] χωριον
 σ]μοχρ[ω]νον φαινηται και
 20 σ]μαλδ[ε]σ το δε πνον αριστον

1] [. . .] [Traces on the line.

4 υποκεπητ[ε]βαι vac would extend further to the right than the end of the previous line. The article may have been omitted, but cf. 8 for a line of similar length.

5 * * * Above η, a short diagonal rising steeply from left to right, with a short horizontal joined to its top. A sweeping diagonal rises from below this horizontal to its right and almost touches the foot of υ in the line above. Perhaps the Ionic ending was felt to require clarification. WBH suggests that the combination of signa is a (mistaken) rough breathing (not identical to the one in 14, but cf. Turner, *GMAW*³ p. 12 for such inconsistency) and acute accent: 'the top of the upright of the breathing is not present but may have been lost to abrasion. Perhaps the scribe misunderstood a heavily inked accent in his exemplar.'

6 * ρε[ι]ευ εκε[ν]ε[σ]βαι C¹M¹V (printed by Jouanna: cf. pp. ccxiii-iv); υποκεπητ[ε]βαι Gall.(VRF); δε-ακεπητ[ε]βαι Gall.(P). The previous sentence (4) has υποκεπητ[ε]βαι with χρη. Lati has *considerare* in both places (139.20, 21 Alex.). Cf. *Prog.* 25.1, 4 (ii 188.9, 190.5 L = 78.1, 79.7 J), where κρωδω is used in the appropriate sense. * κ ρε[ι]ευ may have been added as a gloss, since the use of εκε[ν]ε[σ]βαι shortly after υποκεπητ[ε]βαι but in a different sense is potentially confusing: cf. the translation of W. H. S. Jones in vol. II of the Loeb Hippocrates (p. 19). 'One must suspect . . . ought to be judged of thus'. For the omission of κ in the sequence χρηρ[ι], cf. P. Mich. IV.1 224.1955 (173); Gignac, *Gammata* I 65¹ (WBH).

7 οσα. C¹M¹Gall. have δκοσα, as printed by Jouanna, while V has δσα. Only a quotation in Gal. *Hipp.*

Epid. VI L13 (rviiA 855.12 K. - CMG V.10.2.2 15.11) agrees with the papyrus in giving $\delta\alpha$ (cf. 13 n.). Alexander (1968) 25, 199-10 n., prefers $\delta\alpha\alpha$ against $\delta\alpha$ and $\delta\omega\delta\alpha$ as *lectio difficilior* throughout *Prog.*

To 1012, 1 has a crossbar growing out of its side at mid-line level: perhaps the scribe began to write η .

11c with V: cf. C'MGall, printed by Jouanna. Cf. 12 n.
10-11 II of . . . I . . . I. Galen, *Hipp. Prog.* 1.40 (sviiiB 103.18-104.2 K. = CMG V.9.2 254.25-255.3), knew of two readings in this passage, $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ and $\delta\alpha\sigma\kappa\upsilon\rho\omicron\mu\epsilon\sigma\alpha$. The latter is found at this point in MV, while C'Gall. have the former. Where the papyrus reads $\delta\alpha\sigma\kappa\upsilon\rho\omicron\mu\epsilon\lambda\alpha$ below at 12-13, $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ is given by C'MGall(Ar), while VGall(LVB) has $\upsilon\sigma\tau\epsilon\rho\alpha\lambda\omega\delta\alpha$ (and Gall(F) $\kappa\alpha\tau\epsilon\sigma\tau\alpha\lambda\omega\delta\alpha$; om. Gall(P)). As Alexanderson (1968) 27, 205.3 n., suggests, the reading $\upsilon\sigma\tau\epsilon\rho\alpha\lambda\omega\delta\alpha$ in Galen's lemma may have made its way into the lemma (and then into V) due to the influence of Galen's own paraphrase, $\upsilon\sigma\tau\epsilon\rho\alpha\lambda\omega\delta\alpha$ $\delta\epsilon$ $\delta\lambda\alpha$ $\pi\acute{\rho}\omega\tau\alpha$ $\kappa\alpha\tau\epsilon\sigma\tau\alpha\lambda\omega\delta\alpha$ (sviiiB 103.14-15 K. = CMG V.9.2 254.22-23). Alexanderson prints $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ in both places, but allows that $\delta\alpha\sigma\kappa\upsilon\rho\omicron\mu\epsilon\sigma\alpha$ may be right in the first as *lectio difficilior* (27, 205.2 n.). Alexanderson thus seems to understand Galen's remarks on the variant reading as referring only to the first instance of the disputed word, but they would make equally good sense if read as referring to both places, i.e. if the different witnesses to which Galen had access had either $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ twice or $\delta\alpha\sigma\kappa\upsilon\rho\omicron\mu\epsilon\sigma\alpha$ twice (the relevant remarks are as follows: $\epsilon\tau\epsilon\rho\delta'$ $\epsilon\lambda\epsilon$ $\delta\epsilon$ $\delta\epsilon$ $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ $\epsilon\tau\epsilon\rho$ $\epsilon\lambda\epsilon$ $\delta\epsilon$ $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\sigma\alpha$ $\gamma\epsilon\rho\alpha\mu\epsilon\mu\epsilon\sigma\alpha$ $\epsilon\tau\epsilon\rho$, $\delta\eta\lambda\omega\sigma$ $\delta\tau\epsilon$ $\mu\epsilon\lambda$ $\kappa\alpha\tau'$ $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ $\tau\acute{\alpha}\varsigma$ $\lambda\acute{\epsilon}\gamma\epsilon\iota$ $\epsilon\tau\epsilon\rho$ $\kappa\alpha\iota$ η $\alpha\iota\tau\eta$ $\delta\iota\alpha\sigma\tau\alpha$). Since the papyrus stands alone with $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ in the second place, it is perhaps most likely that $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ was written also at 10-11, where damage precludes a certain reading. Jouanna adopts $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$ as *lectio difficilior* in both passages: cf. his discussion on p. 137 (22 n. 1).

11 $\tau\epsilon$ $\epsilon\sigma\theta\eta\tau\alpha$. The surface is badly damaged and the dotted letters are very insecurely read.

The papyrus uniquely omits $\kappa\alpha\iota$ $\pi\lambda\alpha\tau\epsilon\alpha$ after $\epsilon\sigma\theta\eta\tau\alpha$: perhaps the scribe skipped ahead to the next $\kappa\alpha\iota$.

12 $\sigma\upsilon\kappa$ the rest of the tradition has $\theta\upsilon\epsilon\tau\alpha$. Doubtless simple banalization.

13c with V: cf. C'MGall, printed by Jouanna. Cf. 10 n.

12-13 $\delta\alpha\sigma\kappa\upsilon\rho\phi\omicron\mu\epsilon\lambda\alpha$: cf. 10-11 n.

13 $\sigma\omicron\kappa\upsilon\sigma\alpha$ with C'Gall., as printed by Jouanna: $\delta\alpha$ $\epsilon\sigma\mu$ and Gal. *Hipp. Epid. VI*: $\delta\alpha\alpha$ V. Contrast $\sigma\upsilon\kappa$ at 7, 13-14 $\epsilon\lambda\epsilon\omega$. The ϵ has a long crossbar (or possibly it was followed by a separate horizontal stroke used as a line filler). This suggests that the papyrus agreed with C' and Gal. *Hipp. Epid. VI* in reading $\delta\alpha\alpha$ (as printed by Jouanna), rather than $\epsilon\iota\omega$ (MVGall).

14 $\theta\eta\gamma\gamma\alpha\gamma\eta\eta$ υ $\tau\alpha$. $\theta\eta\gamma\gamma\alpha\gamma\eta\eta$ is found in MVGall(VRP) and Gal. *Hipp. Epid. VI*, and printed by Jouanna, while C'Gall(F) have $\theta\eta\gamma\gamma\alpha\gamma\eta\eta$. WBH suggests that the exemplar had $\theta\eta\gamma\gamma\alpha\gamma\eta\eta$ with $\theta\eta$ and υ written above the line as corrections, and that the scribe mistook the supralinear $\theta\eta$ for an addition and initially missed (or ignored) the supralinear υ . A corrector (the hand is perhaps the same as at the start of line 8) has cancelled the θ in $\theta\eta\gamma\gamma\alpha$ and corrected it with υ above the line, but θ is not dotted. The variant $\theta\eta\gamma\gamma\alpha\gamma\eta\eta$ may owe something to the paleogeographical similarity of θ to γ in some hands (as in that of this papyrus). For the termination, cf. 19 n.

$\alpha\sigma\tau\epsilon\iota$ is followed by $\epsilon\tau\epsilon\rho$ in the other sources, as in Jouanna's text.

15 $\mu\theta\epsilon\sigma$ with MV: $\mu\theta\epsilon\delta$ C'Gall. and Gal. *Hipp. Epid. VI*, printed by Jouanna.

15-16 $\epsilon\sigma\tau\epsilon\kappa\omega\upsilon\sigma\omega\sigma\epsilon$: C'MGall. have $\epsilon\sigma\tau\epsilon\kappa\omega\upsilon\sigma\omega\sigma\epsilon$, printed by Jouanna, while Gal. *Hipp. Epid. VI* agrees with the papyrus. V has $\kappa\omega\upsilon\sigma\omega\sigma\epsilon$.

15, 17 There may be a trace of a horizontal stroke at the end of each of these lines; cf. 13.

16-17 $\pi\alpha\sigma\chi\epsilon\tau\alpha$ λ $\mu\epsilon\sigma\alpha$. The participle λ $\mu\epsilon\sigma\alpha$ is familiar, and the omission of a second triangular letter (λ) was an easy corruption. The reading after correction matches that of C', accepted by Jouanna; MV have $\pi\alpha\sigma\chi\epsilon\tau\alpha\lambda\omega\delta\alpha$ and Gall. $\upsilon\sigma\tau\epsilon\rho\alpha\lambda\omega\delta\alpha$.

19 ω $\mu\alpha\chi\omega\sigma\omega$. ω is damaged on the right, but cannot be read and would in any case not fit the space. For the formation in three movements (left-hand arc, descending oblique, right-hand arc), cf. 16 $\kappa\omega\upsilon\sigma\omega\sigma\epsilon$. M has $\delta\omega\mu\chi\omega\sigma\omega$, printed by Jouanna, while V and Gall. have $\delta\omega\mu\chi\omega\sigma\omega$. C'Last have $\delta\omega\mu\chi\omega\sigma\omega$ before $\pi\alpha\theta$. The corruption may be due to the influence of the familiar form $\delta\omega\mu\chi\omega\sigma\omega$: perhaps ω was written over $\omega\omega$ in the

exemplar and the scribe took it as a correction of the first omicron. For interchange of ω and α , cf. Gignac, *Grammari* 175-7' (WBH).

$\phi\alpha\upsilon\sigma\tau\alpha$ with M, printed by Jouanna: $\phi\alpha\upsilon\sigma\tau\alpha$ C'VGall. The subjunctive is at first sight difficult to explain. Jouanna follows Reinhold in restoring $\phi\upsilon$ before $\pi\alpha\theta$ to account for it. The appearance of $\phi\alpha\upsilon\sigma\tau\alpha$ in this papyrus may shed new light on its origin. The exemplar had another irrational subjunctive (ϵ - $\eta\tau\alpha$ for ϵ - $\eta\alpha$) shortly before in $\gamma\acute{\eta}\theta\eta\gamma\eta\eta$ (16 n.). There the curious $\eta\tau\alpha$ was eliminated when the right verb ($\theta\eta\gamma\gamma\alpha\gamma\eta\eta$) was restored, but here the verb is the correct one and the corruption, being confined to the termination, has gone unnoticed. The new variant in line 14 may suggest that M's $\phi\alpha\upsilon\sigma\tau\alpha$ is not a unique preservation of the truth but rather the last trace of a tendency in part of the tradition heretofore to write $\eta\tau\alpha$ where ϵ - $\eta\alpha$ is required. Reinhold's $\kappa\alpha\iota$ ($\phi\upsilon$) would be in danger of being misunderstood as "even if" (WBH).

19-20 $\kappa\alpha\iota$ [$\sigma\mu\alpha\lambda\epsilon$]: not found in any other witness, and not admitted to the text by Jouanna. The following sentence includes $\kappa\alpha\iota$ $\delta\eta\lambda\omega\delta\alpha$, in the sequence $\kappa\alpha\iota$ $\delta\eta\lambda\omega\delta\alpha$ $\kappa\alpha\iota$ $\lambda\epsilon\iota\omega$ $\kappa\alpha\iota$ $\delta\epsilon$ $\theta\upsilon\epsilon\tau\alpha$ $\delta\omega\delta\epsilon$ (ii 130.10-11 L. = 22.7-8 J.); in that passage, C' StephL. have $\kappa\alpha\iota$ $\lambda\epsilon\iota\omega$ (for $\lambda\epsilon\iota\omega$) before $\kappa\alpha\iota$ $\delta\eta\lambda\omega\delta\alpha$, and M omits $\kappa\alpha\iota$ $\delta\eta\lambda\omega\delta\alpha$. Perhaps $\kappa\alpha\iota$ $\delta\eta\lambda\omega\delta\epsilon$ was written there in part of the tradition, but dropped out by parallelism (cf. 11 above) and was restored in the margin, whence it was copied into the text in the wrong place in this copy or one of its ancestors? (WBH). Jouanna 22 n. 2 notes that $\delta\eta\lambda\omega\delta\epsilon$ is found in part of the manuscript tradition at *Coac.* 275 (v 642.18 L.) in a passage taken from *Prog.* where the tradition of *Prog.* has $\delta\eta\lambda\omega\delta\alpha$ (ii 116.1 L. = 17.7 J.).

D. LEITH

5224-6. DIOSCORIDES

These three manuscripts of Dioscorides' *De materia medica* (henceforth *MM*), assigned to the second, third, and fourth centuries, double the number of ancient copies published to date, making it 3 and the Hippocratic *Aphorisms* the known medical works best represented on papyrus. The other ancient copies are P. Mich. inv. 3 (MP³ 346), of the mid-second century, containing an extensive passage from *MM* 2.76 (i 151.18-152.3, 153.15-157.23 W.); P. Aberd. 8 (MP³ 347), a papyrus of the second century from the Fayum, preserving parts of *MM* 3.130-31 (ii 140.8-141.2 W.); and P. Köln VII 312 (MP³ 347.01), of the late first or second century, with parts of *MM* 4.1-2 (ii 168.6-10 W.).

Four further papyri, P. Leid. X, P. Ant. III 123, PSI inv. 3011, and 5242 below, preserve excerpted sections or abridgements of *MM*, or text which otherwise coincides with parts of it. P. Leid. X (MP³ 1997), a papyrus codex assigned to the third or fourth century (see R. Halleux, *Les Alchimistes grecs* i (1981) 22-4), contains in its final section (pp. 14.15-16.28), at the end of a list of alchemical recipes, a series of excerpts on minerals taken from *MM* 5, and introduced by the heading *Διοσκορίδου δὲ τοῦ περὶ ἑλίου*. P. Ant. III (MP³ 2388.1), a papyrus codex of the sixth century, preserves a pharmacological compilation that derives much of its content from *MM* but also contains some non-Dioscoridean material (cf. e.g. fr. 41a). The ordering of the plants seems to have conformed to some extent to Dioscorides' original, non-alphabetical scheme (cf. esp. fr. 7(a), 8(a), 7(b), 8(b)). The Dioscoridean sections show clear signs of abridgement, paraphrase, and extensive re-wording. PSI inv. 3011 (MP³ 2388), of the third century, preserves a list of views associated with certain named authorities on the medical properties of various plants. Dioscorides makes the same statements about these

plants, in the same words and in the same order, at *MM* 1.73 (l 73.5–7 W), 77 (l 77.18–22 W), 79 (l 79.5–6 W), and 81 (l 79.19–21 W), but without naming the authorities (though in the last case he attributes the view to *εἰθίος*). Finally, 5242 gives instructions for the thickening of oils resembling those of Dioscorides, though employing different measures.

There is no sign that any of the new papyri carried illustrations. In each, as in P. Aberd. 8, the preserved text bridges chapters of *MM* on individual plants, showing that illustrations were not found between the entries. Nor does reconstruction of the text at any point indicate that there was variation in the indentation of the columns: there were clearly no illustrations within the body of the column. While it remains possible that whole column widths were given over to illustrations, the intercolumnium preserved in 5226 counts against this possibility. Moreover, the only extant example of an illustrated herbal on a papyrus roll, P. Tebt. II 679 + P. Tebt. Tait 39–41 (MP3 2094, second century), depicts each of its plants directly above the relevant text, as in the codex herbal P. Johnson + P. Ant. III 214 (MP3 2095) and in manuscripts C and N of Dioscorides. This is also the only arrangement mentioned by Pliny in his description of the illustrated herbals of Crateus, Dionysius, and Metrodonus (*NH* 25.8 *pinere namque effigies herbarum atque ita subscribere effecit*). The absence of illustrations in these papyri does not of course disprove the belief of J. M. Riddle, *Dioscorides on Pharmacy and Medicine* (1985) 177, that *MM* was originally illustrated, but there is as before no evidence in early copies to support it.

I am extremely grateful to Dr Marie Cronier, who is preparing a much-needed new critical edition of Dioscorides, for her kindness in providing detailed comments on earlier drafts of the following three papyri. She also generously shared with me her collations of the relevant portions of text, as well as the results of her unpublished research on the manuscript tradition. A number of her advances over Wellmann's editorial work on Dioscorides have informed the following papyrus editions. Among the most significant is her use of several important copies not used by Wellmann, notably G (Vat. gr. 284, of the tenth century), M (New York, Pierpont Morgan cod. M 652, likewise of the tenth century), W (Athous Magnae Lavrae Ω 75, of the eleventh), and J (Paris. gr. 2260, of the fifteenth). For the components of M (Ma, Mb, and Mc), see M. Cronier, *REG* 125 (2012) 95–130. Cronier has also established that Wellmann's H, A, and Di are of no value for the establishment of the text, having been copied from extant manuscripts; I have therefore not recorded their readings. Cf. further M. Cronier, 'Quelques aspects de l'histoire du texte du *De materia medica* de Dioscoride: forme d'origine, remaniements et révisions à Constantinople aux X^e et XI^e siècles', in V. Boudon-Millot et al. (edd.), *Edoia et ricezione dei testi medici greci* (2006) 43–65; ead., 'L'Herbier alphabétique grec de Dioscoride: quelques remarques sur sa genèse et ses sources textuelles', in A. Ferraces Rodríguez (ed.), *Fitozooterapia antigua y alomedieval* (2009) 33–59; and ead., 'Le Dioscoride alphabétique latin et les traductions latines du *De materia medica*', in D. Langslow, B. Maitre (edd.), *Body, Disease and Treatment in a Changing World* (2010) 189–200.

D. LETH

522A. DIOSCORIDES, *DE MATERIA MEDICA* 1.61, 63–4

72/13(d)

6.7 × 6.3 cm

Fourth century
Plates II (–), III (↓)

A fragment of a papyrus codex containing remains of eight lines on the → side and nine on the ↓ side. Only the outer margin (see below) is preserved, extending to 2.6 cm on the → side, and c. 2.5 cm on the ↓ side.

The text is written in iron-gall ink in a medium-sized formal hand. The hand slopes forward and is generally bilinear, with only ρ and υ projecting below the lower line. (φ and ψ do not occur.) There are some features of the Severe Style, especially its narrow ε and c. ω is broad and rounded. The arms of κ are separated from its upright. Cf. *GMAW*² 49 (XXXIV 2699), assigned to the fourth century; *GBEBP* 12a (XI 1352), 12b (PSI X 1171), also assigned to the fourth century.

A heading at J 4, placed on a separate line in *ekthesis* and preceded by (forked?) paragraphus, signals a new chapter and specifies the name of the plant to be discussed. The name *κυύρρα*, as the first word of the new chapter, is repeated at J 5. This feature is not found in any other papyrus fragment so far published, but several of the later manuscripts have headings, most often introduced by *περὶ* (especially FHADI).

As the columns are very narrow, with an average of seventeen letters per line (width roughly 7 cm), the codex must have contained two columns per page (cf. 5219 and 5227). The chapters preceding that on *κυύρρα* (1.61–3) constitute the end of a discrete section on different forms of perfumed oil, and it is not certain that each of its subsections was given a separate heading in the same way as the chapters on individual plants. The text between the preserved portions would fill a further 34 lines without headings, on the assumption that each subsection describing a different oil was begun on a new line, or a further 36 lines with headings. A column height of 41 or 43 lines (c. 22 or 23 cm) falls well within acceptable limits. Each of the surviving portions of text will then have formed part of the outer column of its page.

There are no punctuation marks in what survives. Inorganic diaeresis is used at → 5. At → 3 and 7, the papyrus gives several viable readings not adopted by Wellmann and previously known only from G or G and J.

* (ii 56.14-17 W.)

↓ (i 57.5-7 W.)

	αυθ]ρακας και γα[γυ (i.61.2)] . [. [. [. [
	γρανας εν]ν καρδιαμω	και αμαρακ]νω των	(i.6)
	μω προς τε ρ]ιχη περιω	δυναμιν [
	δικα και προ]ς τρομοις	ε]λα]θρα [	1.64.1
5	τους απο τα]ν ιοβολων	5	εμυρνα [δακρυον εστι
	θηριων γα]γ]νομενους		δενδρο]ν γεννημενου
	εν κυρχριμ]ασι εν επι		εν αραβι]α]μοιου τη
	θεμα τε σκο]ρπισση		αιχμητ]τ]ακη ακαν
			θη ου ε]γκοπτομενου

3 περιω]βικα. The papyrus agrees with G alone in omitting the article: τὰ περιωδικά McWFJ.

4] omits προς.

5 τοϛ GJ; και τοϛ F; και προς τοϛ McW. To judge by the space available, the papyrus agreed with GJ.

6 G's γιγνομενους is perhaps best suited to the available space, and gives good sense if και was not present at 5 (see n.). Other readings: γινομενους McJ, γινομενους θηριωδϛ W, δακρυομενους E.

7 κυρχριμ]ασι, with G alone: κυρχριματι McWFJ.

↓
1 The traces are meagre. Of the first letter, a vertical extends below the notional lower line. Perhaps αρα]λλο]γ]ου]ν τ]ω κροκα]νο could be restored, with the other manuscripts, but this is far from certain.

2-3 ηη] | δυναμια: G alone has ηη δυναμια. All other witnesses agree with the papyrus.

5-6 δακρυον εστι FGJ; εστι(ο) δακρυον McW. I have restored the reading of FGJ merely *exempli gratia*.

D. LEITH

5225. DIOSCORIDES, *DE MATERIA MEDICA* 3.17-18

50.4B.33J(6-7)b

Fr. 1.5 × 8 cm

Second century

Plate V

Three fragments, with writing running along the fibres. The back contains remains of two columns, with an intercolumnium 2-2.5 cm wide, of an unidentified text written in a badly faded hand and running in the same direction. Fr. 1+2 have on the front remains of two columns, the second being represented by a small trace (paragraphus?) just above the level of line 5. The left (fr. 2) and right (fr. 1) margins of the first column survive, the former to a width of 0.2 cm, the latter to c. 0.5 cm. The supplements give a column width of c. 8.5 cm. Fr. 3 has a blank space extending to 0.8 cm below its last line, but the remains of the text on the back

suggest that this represents a blank portion of a line rather than the lower margin. There are between 28 and 33 letters to a line, with an average of 30.6.

The new chapter at fr. 1+2.8 begins on a new line, in *ekthesis* and preceded by a paragraphus. A subsection also begins on a new line (4).

The text is copied in a small, upright, informal round hand, with liberal use of right-facing setifs on the feet of verticals. The hand is roughly bilinear, with ρ extending below the lower line, and φ projecting far above and below. The cross-bar of ε is long, often touching the following letter. Occasional ligatures are found (cf. e.g. λα at fr. 1+2.11, ει at 13). The hand may be placed in the second century, probably earlier rather than later in that century. Comparable are *GMAW*² 22 and 24 (XXVI 2441, XVIII 2161), both assigned to the second century, and there are broad correspondences to *GLH* 13b (P. Lond. Lit. 132), assigned to the first half of the second century.

Organic diaeresis is used at fr. 1+2.9. Apostrophe marks elision at fr. 1+2.1. Itacistic spellings are found at fr. 1+2.9, 11, and 13.

Fr. 3 remains unidentified, and may preserve a variant text.

The text is generally good. There is a possibly correct new reading at fr. 1+2.14.

Fr. 1+2 (ii 24.1-11 W.)

Fr. 3

		] δ' ουρα	(3.17)] . [
	αγουσι και κολιαν ιστασι φθ]ιςτικοι τε			] μμαδ[
	και	] ]		] γηδ. [
	γιγεται δε και αγρια] ακ[ανθ]α ομοια]]
5	σκολυμω ακανθωδ]ης βραχυτερα της			
	εν παραδεισοις και η]μερου δυναται δε			
	και ταυτης η ριζα οσα κα]ι η προ αυτης			
	ανω]ρις οι δε ονομιδα καλο]υεν κλωνε]ς	3.18		
	σπιθαμ]αι(οι και μει]ζονες θαμνοιδε]ις			
10	παλυγο]νται μαχα]λας τε εχοντες π]ολ			
	λας κ[εφαλια περιφερ]η φυλλαρια μει]κρα			
	λεπτα ωσπερ φακου π]ρος τα του πηγανο]υ			
	η λαιτου του εν χορ]τοκοπειοις]υποθ]ια			
	σα και ουκ] αηδης αλ]μυενται			
15	δε προ του ακανθω]δη]ς[αι			

Fr. 1-2

3 *σεται* restored with PW. *ἔτασεν* EF; *ἔτασεν* CN.
 3 *φθίσιαται τε* [ca. Following *ἔτασεν*, CN have *καὶ φθίσιαι ἐδὲ τῶν αἰσθητικῶν* (θετικῶν C). Other manuscripts agree with the papyrus in reading something beginning *φθίσιαται τε* and here. Then PF have *εὐαίμαται ἀφθίσιαι* καὶ φθίσιαι, E has *εὐαίμαται καὶ φθίσιαι ἐδὲ τῶν αἰσθητικῶν*, and W *φθίσιαι καὶ εὐαίμαται ἐδὲ τῶν αἰσθητικῶν*. The papyrus appears to have had something shorter.

4 *αἰμα* restored with PEWF: *αἰματι* DL. There is insufficient space for the variant *ἀγριαῖος* of COrib.

αε[αθη]δ with EWOrib: *ἀναθός* CP: *ἀκαθ(λ)* E.

4-5 *αἰμο* [*κεκολληται* with PEWF]Orib: *οἰα σκολιμῶν ἐμφερῶς* C.

5 *της* with PWF]Orib: *τοῦ C*: *τοῦ E* (της in ras).

7 *ταυτης* restored with CEW: *ἡ ταυτης* PE.

8 *αὐτῶν* αὐ δὲ οὐκ ἔστιν *καλοῦσιν* restored with PFG (δύναμις C). MaW give *δύναμις*: *οἱ δὲ ἀνοήτοι καλοῦσιν* (εὐλαίαν Ma). E has *ἀνοήτοι*: *οἱ δὲ ἀνοήτοι* αὐ δὲ οὐκ ἔστιν *καλοῦσιν*, DL *de animidie. opinidie, quae nihil opinidie appellauerunt*, and Orib. *ἀνοήτοι* (αὐ δὲ οὐκ ἔστιν).

8-9 *κλώνος* [*εὐαίμαται* καὶ *μελίσσοι* with the majority: G has *κλώνος ἔχει καὶ εὐαίμαται* *μελίσσοι*.

10 *τε* with E, om. PMaWFOrib. G has *ἔχονται μαχάλας πολλὰς* in place of *μαχάλας τε ἔχονται* *π[ολλ]άλας*.

11 *εὐαίμαται* with PGFOrib. There is not enough space for E's *καφέλια*, or for *καφέλια τε* as given by MaW.

11-12 *μελίσσοι* [*ἀπὸ* with MaEWGOrib: *ἐπὶ* μικρά P: *ἰ* μικρά F.

12 *οὐκ ἔστιν* *φύσιν* restored with E (del. EF) MaWGD: om. PFOrib, Arab. The available space indicates that the papyrus had the words. Wellmann does not include them in his text.

13 *ἡ δύναμις* *τοῦ* restored with the majority: *ἡ φύσις τὰ τοῦ ἰσχυροῦ* G.

14 Between *ὀσπράκια* and *ἐλάμθεσαι*, various readings are attested: *ποδὴν καὶ οὐκ ἀφθίσιαται* E: *ποδὴν καὶ οὐκ ἀφθὲς ἔδονται* W: *καὶ ποδὴν οὐκ ἀφθὲς ἔδονται* C: *ποδὴν καὶ οὐκ ἀφθὴ* Ma: *εὐαίμα καὶ οὐκ ἀφθὴ* Orib: *εὐαίμα* PF. WBH suggests that the papyrus may have had, as a viable variant, *ποδὴν* (or *εὐαίμα*) *καὶ οὐκ ἀφθὴ*, of the plant. The feminine singular endings would be easily corrupted due to the influence of the context.

15 *ἀκαθόθη*] *η* with EW: *ἀκαθόθη* αὐτῶν PFMaG: *ἀκαθόθη* αὐτῶν Orib.

Fr. 3

2 A possible restoration is *ἀμμοσφῆς*, found at 3.15.1 (ii 22.3 W), but line 3 does not correspond to the text transmitted for that passage.

D. LEITH

5226. DIOSCORIDES, DE MATERIA MEDICA 3.71-4

42 5B.78/F(7)a

8 × 22 cm

Third century

Three contiguous fragments of a papyrus roll preserving portions of two columns written across the fibres. No margins survive. On the front, parts of two columns of cursive, with text running in the same direction. There is a gap between two strips of vertical fibres at the foot of col. ii, with the horizontal fibres underneath exposed; the scribe wrote across it at 23 and 24 but avoided it at 25 by leaving a space blank between ξηρ and αλ. The intercolumnium is 2.5-3 cm wide. Lines contain between 39 and 44 letters (average 42-3), giving an approximate

reconstructed column width of 14 cm, a remarkably high figure for a prose text: cf. Johnson, *Bookrolls* Table 3.1, pp. 162-74, and for a similarly broad column in a copy of a prose text on reused papyrus (and a similar informal hand, assigned to the third century), cf. LXIX 4738 (Lucian). The column height will have been about 22.5 cm: see below.

The hand is a medium-sized cursive assignable to the third century: cf. the first hand of XI.2895, of 269/70.

Each section begins on a new line and is preceded by a paragraph projecting into the margin and underneath it a *diple obelismene* ranged with the text. No further means of articulating the text are in evidence. There are itacistic spellings at ii 5 and 15, and diæresis on initial α at ii 7.

The alphabetized manuscripts C and N have several extra chapters, not found in the principal manuscripts that preserve Dioscorides' original arrangement. One such chapter, on the plant *δελφίνιον*, is given (in square brackets) between those on the *δαῦκος* and the *πύρεθρος* (MM 3.72 and 73) in Wellmann's edition (ii 84.6-22). As Dr Cronier informs me, it was placed there for the first time in v (Marc. gr. 271), where it is copied from a marginal annotation in H (Pal. gr. 77), both manuscripts being of the second quarter of the fourteenth century. Cronier, in A. Ferraces Rodríguez (ed.), *Fito-zooterapia antigua y altomedieval* (2009) 33-59, esp. 37-44, has shown that these chapters were not included by Orribasius in his *Collections medicæ*, and that Raeder was accordingly mistaken in printing them in his edition of that text. Hence there is no reason to suppose that this extra chapter on the *δελφίνιον* was copied in the present papyrus in the lacuna following the surviving part of col. i. The dimensions of the papyrus seem to confirm that it was not included. The chapter on the *δαῦκος* would be expected to end about eleven lines after i 18. To judge by the number of lines preserved in col. ii, the column would then be about 30 lines high, if we include spaces occupied by *diplai obelismenai* and paragraphs. The extra chapter on the *δελφίνιον* would fill an additional eighteen lines, including an extra line for the *diple obelismene* and paragraph that would have signalled the beginning of the new chapter. Since the 29 lines preserved in col. ii, again counting spaces taken up by *diplai obelismenai* and paragraphs, occupy an area some 22 cm high, 18 lines should take up an area about 13.5 cm high, giving a total column height of 35.5 cm. Such a column height is unexpected, whereas a column of 30 lines, c. 22.5 cm high, is unexceptionable for a third-century copy of a prose text (see Johnson, *Bookrolls* 119-25, with Table 3.3, pp. 185-200). We can be confident, then, that the extra chapter on the *δελφίνιον* was not copied at this point, and that the column height was therefore about 22.5 cm.

The papyrus is of some textual interest. It points to a solution to a textual problem at i 13, and gives viable new variants at i 14, ii 3-4, 7, and 17. A sentence has dropped out through homoeoteleuton at ii 19, and there may have been another example of *saut du même au même* in the missing part of i 12. An apparent correction at i 17 may be intended to restore a reading familiar from later copies.

Col. i (ii 82.5-83.8 W)

		], α, κ]αι λι	(3.71)
	θους θρυπτει και ικτερον αποκαθαιρει των δε φυλλω]ν το		
	αφεψημα πινομενο γαλα αγει και τας εκ τοκετω]ν γυ		
5	ραικας],],],], ...]	
]	
10	δανκος ο μεν τις καλειται κρητικος μαραθω] φυλλα		3.72.1
	εχων ομοια μικροτερα δε καυλον δε σπιθα]μιαον		
	σκειαδιον ομοιον κοριανδρω ανθη λευκα] δη του		
	του ο καρπος δανκος λευκος δριμυς εν τω μα]ς[ησασθαι		
15	ευωδης ριζα δακτυλου το παχος το δε μηκος σπιθ]αμης		
	γενναται δε εν πετρωδες τοπος και ευηλιος σ] δε τις		
	αυτου εστι σελιω αγρω παραπλησιος] δεωδης		
	και ευωδης δριμυς και πυρωδης γενομενω διαφε]ρει δε [
20],],],],],],	
],],],],],],	
25],],],],],],	

Col. ii (ii 85.1 86.17 W)

	πυρεθρον σφο] καυλον ανεισα και φυλλα ωσπερ δαυκον		3.73
	αγριον η μαρι]αθον σκειαιδιον δε ως ανηθου τροχοειδες		
	ριζα δακτυ]λου μεγαλου το παχος μακρα γευσαμενω πυρω		
5	τικωτατον [φλεγματος επισπαστικη διο και ταις οδοιταλ		
	γειαις βοηθ]ει μετ οζους εψηθεισα και διαικλιζομενη		
	αγει δε και φλ]εγμα διαμασθεισα συχριομενη δε συν		
	ελαιω ιδρω]τας κινει ποιουσα προς τα χρονια ριγη και προς		
	τα εψνη]μεν[α δε η παρεμενω μερη του σωματος α		
	κρωσ αρμο]ζει		
10	λιβανωτικ [δισχη η μεν τις καρπος υπ ενιων δε ζει η καμ		3.74.1
	ψαγμα καλ]ουμενη ης ο καρπος καυρον καλειται φυλλα		
	δε εχει μα]ραθω ομοια πλατυτερα δε τροχοειδως επι γης		
	ε]ς[ε]τρομεν]ε]α ευωδη καυλον δε οσον πηχεως και μει		
15	ζονα μα]ς[χλαας εχοντα πολλας και επ ακρω		
	σκειαδιον [εφ ου καρπος πολυς λευκος εοικως σφουδ		
	λι]ω περιφ]ερης γωνιας εχων δριμυς ρητι]ζων		
	εν] τω μα]ς[ησασθαι επικαιων την γευσι ριζα δε λευκη		
	ευ]μεγεθ]ης οζουσα λιβανου		
	η δε λεχ]ομενη ακαρπος κατα παντα ομοια ουσαι ταις προειρη		3.74.2
20	μεναις ο]υ]τε καυλον ανηεν ουτε ανθος ουτε σπερμα		
	φυεται δ]ε εν πετρωδες και τραχεις τοπος πασιω δε κοιωσι η		
	προ] κατα]πλασθεισα λεια αιμορροιδας στελλει φλεγμανου		
	σας και δακ]τυλιον πρανιει και κοινδυλωματα και χοιραδας		
	και τα δυσπ]ε]πτα των αποστη]ματων συμπεσσει αι δε		3.74.3
25	ριζα]ι ε]ηραι [συν μελιτι ελικη ανακαβαρους και στροφου		
	ωνται και]		

Col. I

- 1 The final letter has a stroke extending into the intercolumnium, as at 16, 17, 21, 24, 26, and 27.
 5-9 The rest of this chapter on the plant *ισομαρίθη* (II 87.7-11 W) would fill four more complete lines with a remainder of c. 14 letters, corresponding very well to the available space.
 10-11 Line 11 is probably the first of the new chapter on the plant *δαυκος*. Line 10 will then have contained only a paragrahus and *diple obelismene*. Cf. II, 10, and 19.
 11 If *δα* *ἐστι* for *καλέεται*. N omits *ὁ μὲν τις καλεῖται Κρητικός*, and Mb omits *Κρητικός*.
 11-12 The space available at the start of 12 suggests that the word or words that of E, *μαρίθη φύλλα ἔχον θύαμα*, as restored. The remaining manuscripts show much variation (*μαρίθη θύαμα ἔχον τῆ φύλλα* F; *μαρίθη ἔχον τῆ φύλλα θύαμα* F; *μαρίθη ἔχον (-ov N) φύλλα ἔμφρησ* NMBW). Line 12 is then too long for the transmitted text of any manuscript. I have printed an *exempli gratia* restoration with *καὶ λεπτότερα* omitted. This gives a suitable line length. The second *δέ* is omitted in N and Mb.
 13 *σοειθίων* restored as at II 15; I. *σοειθίον*.
 14 *λεωκα* | *δη* του|frou. After *λεωκα*, NMBW have *ἐστι* (-τιν Mb) *δέ τούτων*, and PEF *ἐν δὲ τούτων*. The trace on the edge is the end of a stroke low in the line. WBH suggests the following: | *δη* after *δοθη* *λεωκα* is likely to be *εὐλόγη*, followed by *τούτων* *ὁ καρπὸς* without connecting particle. Cf. for the adjective 1.93 (II 86.5 W) *δοθη* *λεωκα*, *βοριμύθη*, *εὐλόγη*, 2.265 (II 230.14 W) *δοθη* *λεωκα*, *εὐλόγη*, 3.441 (II 363 W) *δοθη* *δέ* *ἑμπεύφρατα*, *ὀπάλεμα*, *εὐλόγη*, 49 (II 64.1 W) *δοθη* *χροσειῶθ*, *θρυάκτα*, *εὐλόγη*. And for *τούτων* *ὁ καρπὸς* without connecting particle, cf. 1.93 (II 87.31 W), 3.372-3 (II 56.5 W), 197 (II 164.2 W), 4.414 (II 380.9 W), 51 (II 207.5 W), 141 (II 285.5 W), 143 (II 286.5 W), 154 (II 300.12 W); preceded by *καὶ* at 3.262.2 (II 165.9 W). Both *ἐστι* *δέ* *τούτων* *ὁ καρπὸς* and *ἐν δὲ* *τούτων* *ὁ καρπὸς* are unparalleled. The archetype of the later tradition may have been damaged here: cf. |_δ|_|_τουτων|_ for the like could have been interpreted as *ἐστι* *δέ* *τούτων* by one copyist and as *ἐν δὲ* *τούτων* by another. (For a similar case of corruption caused by damage to the archetype of the later tradition, cf. LXXVIII 5150 fr. 2 II 4-7 n.).
 14 *δαυκος* *θημικ* *θημικ* restored arbitrarily with W (NMB have the same word order, but with *δοῦς* for *δαῦος*): *λεωκος* *θημικ* *δαῦος* PEF.
 14 *μαριθησθαι*: *διαμαριθησθαι* PEF, *μαριθησθαι* NMBW (δὲν superscr. W). At II 17, the papyrus has *μαρι* [where all the remaining witnesses have *διαμαριθησθαι* or *διαμαριθησθαι*]. It seems likely that the same form stood in both places, as restored, and it may be the correct reading.
 15 For reasons of space, I have restored *εὐλόγη* with PF; *καὶ* *εὐλόγη* EW; om. NMB.
 17 *αυτου* restored with the majority; *αὐτῶν* W.
 17-18 The space would accommodate something like PF's *θρυματώδης καὶ εὐλόγη θρυμικ* *καὶ πυρόδης γεωμόνης*, of which the latter part is printed in 18. Other variants are much less suitable from this point of view: *θημικ* *καὶ εὐλόγη γεωμόνης* *καὶ πυρόδης* W, *εὐλόγη θρυμικ* *γεωμόνης* *καὶ πυρόδης* E. (NMB do not have this sentence.) In that case, something has gone wrong with *θρυματώδης*. Of the first letter there is only a small trace at mid-height. The traces of the third preserved letter suggest a large *e* but there seems to have been a correction, perhaps a cancel stroke. The scribe may have written *αρωμαριθηεὐλόγη*, with *δ* for *ε*.

Col. II

- 1 *πυρόδης* with CNEWGOrth; *πύραδης* PE
ανισα *καὶ φύλλα* restored with the majority. CN have only *δυσκο*.
 1-3 *δυσκο* | *αυτου* restored with CNEOrth; *δαυκος* *αυτου* PFW; *δαυκο* *αυτου* G.
 2 *γ* with CNEWGOrth.Dl (*αστ*); *κα* PF
σοειθίων restored as at 15 below; I. *σοειθίον*.
 3 *μίζα* with N (C is damaged) and Orith; *μίζα* *δέ* PEF; *μίζαν* WG.
μεγάλου restored without the article, as in PGF; τοῦ *μεγάλου* CNEWGOrth. The line length may suggest that the article was not included, but this should perhaps not be pressed.
 3-4 The papyrus is alone in giving *πυρω* | *γεωμοτης*: *πυρωκοιωτήθη* CNPEFOrth; *πυρωκοιωτήθη*

- W; *πυρόδης* G. The neuter of the superlative is idiomatic in such expressions: cf. West on Hes. Th. 864, citing e.g. Thuc. 1.38.5. It could easily be corrupted to the feminine (WBH).
 4 *ανισακτω* restored (for reasons of space) with PEFOrth. (*ανισακτω* C); *ανισακτω* E; *ανισακτω* N. G has *κακωτω* in place of *φλόγημας* *ανισακτω*.
καὶ τας restored (for reasons of space) with CNEWG; *καὶ* PE.
 4-5 *ὀδοντα* | *γλαυκος*: I. *γλαυκος*.
 6 *κα* with the majority; om. G.
 6-7 The papyrus alone has the dative *ελαυκος* *μετ' ἄλαου* NPEFWG (μ[ε] C). The available space at the end of 6 might suggest that *ου* stood there.
 8 *τα* *εμπεύφρατα*, with CNEWG; *εμπεύφρατα* PE.
 10-11 | *δυσκω* -. *κα* | *αυτου*. *Ma* omits *δυσκω*, while Orith. has just *η* *μὲν* *τις* *κόρημος*. In CNMB, the whole phrase is replaced by a non-Dioscoridean list of synonyms, with chapter heading *εἰρηξω*.
 12 *δε* (pe) with NPEWF; om. CMBMaOrth. G has *φάλλα* *ελαυκος*.
μα | *ραβου* *ομοια* with CNPMBMaWFGOrth. (θρηρ): *ομοια* *μαρίθη* E.
As seems demanded by the available space, I have restored *μαριθησθαι* *δέ* with CNMBMaWEGD: *μαριθησθαι* *δέ* *καὶ* *μαριθησθαι* PArth; *μαριθησθαι* *δέ* *καὶ* *μαριθησθαι* E; *μαριθησθαι* *δέ* Orith.
 13 *σοειθη* restored with the majority; om. CNMB; *εἰς* *δέ* *εὐλόγη* G.
 13-14 *καυλου* *δέ* *οου* *σπυρους* *καὶ* *μειζωνα* restored with CNMBMaWOrth. (minor variants: *κύβου* Mb, *πέτρης* Ma). *η* may have stood in place of *ου*, as in PFarb. Other variants: *καυλοῦ* *δέ* *δου* *σπύρους* E; *καυλοῦ* *δέ* *δύο* *σπύρους* *τὸ* *θύος* *ἢ* *καὶ* *μεῖω* C. D. gives *virga in medio habens longa amplius cubiti*.
 13 *σοειθίων* (I. *σοειθίον*) | *εθ* *ου* with MaDl (*capitellu*, in quo): *εὐλόγη* NMBPEWFArb. (*εὐλόγη* GOrth); *σοειθί* C.
Ma alone has the article before *καρπός*, and it is possible that the papyrus did likewise, given its agreement with *Ma* in the singular at the start of the line.
πουκος restored with the majority; om. MaGDl. Considerations of space are not conclusive, but would tend to suggest that the papyrus agreed with the majority in this case.
 17 *ε* restored with the majority, but *ω* | *δ* (MaW) is also possible.
μαριθησθαι: *διαμαριθησθαι* CNMBPEFOrth; *διαμαριθησθαι* MaW, G has *διαμαριθησθαι* with an erasure after *με*. Cf. I 14 n.
λεωκη (restored) CNMBPFWDlArb; *λεπη* MaWyr; *λεωκη* *καὶ* *λεπη* E. G has *μίζα* *δέ* *ὀπτε* *λεωκη*, *εμπεύφρατα*. Orith. *μίζα* *εμπεύφρατα*.
 18 *εμπεύφρατα* *ομοια* *λαβανου* restored with Wellman, but there would be room for the *ομοια* that follows *εμπεύφρατα* in some witnesses (corrupted to *πυρω* in CNMB).
 19 The papyrus omits *η* *δέ* *ετέρα* ... *λεωκη* (II 86.6-7 W), apparently by *auti de pteba ad pteba*.
 19-20 *αυτα* *παυτα* ... *τας* *πυρω* | *μειζωνα* follows *εἰρηξω* in E (Wellman's report is thus inaccurate).
 20 After *καυλου*, E alone adds *οὐτε* *καρπὸς*, for which there is not space in the papyrus.
 21 *ε* restored with the majority; *δέ* was omitted by Mb, and deleted by the second hand of E. The final traces are indecisive.
σπαιου *δε* *κοικου* restored with PF; *σπαιου* *δέ* *κοικου* E; *σπαιου* *δέ* MaDl (*omittunt*); om. CNMB. G has an insertion from Galen.
 21-2 η | *σφω* *κατα* | *σπαιθεωτα* with the majority; *κατα* *σπαιθεωτα* *δέ* *ἢ* *σῶα* CNMB.
 22 *λεα* restored with the majority; om. CNMB.
 23-3 *αμφοροδης* *ετελλει* *φλεγμωνο* | *ελας* *καὶ* *δυσκο* | *πρωου* *πρωου* restored with E and CNMB (*αμφοροδης* CN, *πρωουδης* Mb). Other readings: *αμφοροδης* *ετελλει* *φλεγμωνο*; *ετελλει* *φλεγμωνο*; *ετε* *κατὰ* *δυσκο* | *πρωου* PFarb.; *αμφοροδης* *φλεγμωνο* *καὶ* *δυσκο* | *πρωου* *πρωου*; *ετε* *λεα* MaW; *αμφοροδης* *ετελλου*; *καὶ* *δυσκο* | *πρωου* *φλεγμωνο* *πρωου* G; *επιωροδης* *πρωου*, *ταμωου* *τα* *το* *λε* Dl.

84/62(c) + 84/67(a)

Fr. 1.4.8 × 11.6 cm

Fifth/sixth century

Remains of a leaf of a double-column papyrus codex (cf. 5219, 5224). Portions of the inner and outer margins survive, together with the upper margin of the inner column on each page. The upper margin survives on the → side, which comes first, to a depth of 1.4 cm, and on the ↓ side to a depth of 0.9 cm. The external margin is 4.3 cm wide on the ↓ side, and 3 cm wide on the → side. A line holds between 10 and 17 letters, with an average of 13–14. The original column width was about 9 cm. A column will have held 26 lines, giving a column height of about 23.5 cm. Six leaves could hold the text from the beginning of the work to the start of 5227 col. 1.

The hand is a large sloping majuscule with some decoration. *εθ*oc are narrow, and *κ* has its arms separated from the upright. The scribe sometimes uses smaller letters at the end of a line where it would otherwise be over-long, but the right-hand margin is still quite irregular. Cf. P. Ant. III 157 (GBEP 23a), assigned to the fifth/sixth century.

Blank spaces are used to mark sense breaks (i 2, ii 3, iv 6). A coronis marks a section division at i 4 and iii 1. Initial *ν* receives a diaeresis (ii 11). A bar stretching into the margin can be used for *ν* at line end (col. ii *passim*). *ι* is written for *ει* at i 3 and *οι* for *ου* at ii 9. Elision is unmarked at ii 11, iii 10, 11, and apparently iv 9.

The text offers a good but hitherto neglected variant at ii 2 and appears to have had another such at iv 9. An attractive new variant appears at iv 1. There is a possible example of omission by haplography in the lost part of iv 6, and a corruption shared with nearly all the other manuscripts at the end of the same line.

The collation text is the critical edition of the opening part of the book included by F. Gärtnert, *Prolegomena zu einer Edition von Galens Schrift de locis affectis*, *Galenos* 4 (2010) 47–80, on pp. 68–80 (cited by Kühn's page and line, given in Gärtnert's margin). I am extremely grateful to him for sharing with me his complete collation of the relevant passage. The manuscript sigla are Gärtnert's, and the notes present a collation with his text. For full details of variants and the manuscripts attesting them, Gärtnert's article and his forthcoming edition of *Loc. Aff.* 1–2 for the *Corpus Medicorum Graecorum* should be consulted.

Col. i (fr. 1 →)

Col. ii (fr. 2 →)

χηλου [της κυστε
 ως * αμ[α δε ποδη
 γηεις [τοις ουρσις
] ει δε τα [μεν του λι
 5 θου ση[μεια μη φαι
 νοιτο [προγεγενη
 θαι τ[ης ικχυριας

viii 11.8 K.

τη]ε των [
 προγεγονο]των [
 γνωσεω]ς * ει με[
 γαρ ητοι κα]τα κυστ[ι
 5 η νεφρου]ς ειη τι
 προγεγε]νημε[ν]ο

viii 12.1 K.

αμα[τος δε τις εκ
 κρισει [εικος ειναι
 10 θρομβ]ιου εμφρατ
 το]ντα τ[ην ουρη
 θρα]ν [

παθος ως ε[ξ αυτου
 δυνασθα]ς προσδ[ι]ο
 κησαι π[οιου ηθροι
 10 εβαι τ]οσοιτων τε
 και το]ιοιτων υφ' οσου
 τε και] ριου φρα
 χθην]αι του πορο
 εικος ε]στιν δυνατο
 15 ειναι στ]οχασομεθα
 δια την α]ιτιαν
 ταυτην επι]ςχηθ[η]

Col. iii (fr. 2 ↓)

Col. iv (fr. 1 ↓)

μηδ]ερος δε τοιου
 το]υ προηγησα
 μενου [την διαταν
 εξετ]ασομεν ει
 5 αργο]ς η δια πολ
 λων ε]δεσματος
 παχι]εις η γλιχρους
 εργα]ζομενων
 χημι]ας [ουτω
 10 δ ει και σα]ρκα τι
 να δι ελκ]ωσι
 επιτ]ραφεισαν
 ηγουμεθ]α τον τρα
 χηλον τ[ης κυστε
 15 ως εμφ]ραττειν
 εκ τε τω]ν προηγη
]α[μειων του ελ
 [κουσ σημειων εκ τε]

viii 12.9 K.

του κενωθ]ηναι ε[
 πι του καθ]εστηρη [
 κυλλο]γιου μεθα
 και ποτε] και γενο
 5 μενον ο]δα του
 του παθη]μα * διεκ
 βαλλο]με]νου γουν [
 του καθ]ετηρος ηλ[
 γηεν τ]ε κατ ε
 10 κενω το]υ πορου
 του μερος ε]νθα [και
 προτερο]ν ετ[εκμη
 ραμεθα] . . .

viii 12.13 K.

Col. i

2-3 ποθή||γρηεις [; I. ποθήρηεις. A substantive ποθήρηεις, not registered by LSJ or its Revised Supplement, is recorded by LBG from Gal. *Comp. Med. Loc.* 8.8 (Milli 217,8 K.), but the verb ποθήρηεις is needed here, as in Gartner's text. (Variants: ποθήρηεις AQCCH*, -εϋ M, -ερασι H*.)

4-5 του λι||θου: the article is not printed by Kühn and is omitted from Gartner's text due to a typographical error.

Col. ii

2 προγεγοσι||των [; Gartner adopts the variant προγεγομένους, noting that προγεγοσέντων is the reading of η, while L has πρώτον γεγοσέντων, and κ προγεγεμένους. The papyrus has the truth. Galen's προγεγοσέντων will have been corrupted to προγεγεμένους through the influence of προγεγεμένους in the next sentence (line 6 in this copy). Corruption in the opposite direction would be more difficult to explain' (WBH).

9 π]οισιν: I. πόν. For the spelling, cf. 5241 fr. 3.16; Gignac, *Grammar* 1 197-9.

15 ε]το]γαμοεβα is to be restored in Gartner's text, which has a typographical error here.

17 ε]π]ι]ε]χ]ε]φ]η]μα: ε]π]ι]ε]χ]ε]φ]η]μα (Ca) and ε]π]ι]ε]χ]ε]φ]η]μα (η) are not ruled out.

One line will be missing at the foot of the column: cf. col. iii.

Col. iii

5 η, deleted by Gartner, is included in the supplement as it is present in the other manuscripts (cf. H).

Col. iv

1 κενωθ]η]ται: the other manuscripts have κενωθ]η]ναι τὸ ὄργανον, printed by Gartner. WBH argues that the papyrus has the authentic text: 'it is the bladder that is emptied: cf. e.g. Ruf. *Ret.* Vn. 8.7 (CMG III.1 144.17-18) οὐδὲ γὰρ εἰ κενώσται τὴν δάσιν ὄργανον, δίδονται πάλιν κενωθ]η]ναι (η) κέντις, Gal. *Loc. Aff.* 5.8 (viii 373-3 K.) ἐγχεσθ]ε δὲ ποτε καὶ πηρωστικὰς αὐτῆς, ἄσπερ ἢ οὐροδόξος κέντις ὄργανον, μὴ δίδασθαι κενωθ]η]ναι. τὸ ὄργανον was perhaps added above the line by a reader attempting to clarify the sense, and then copied as part of the text: cf. e.g. W. Wyse (ed.), *The Speeches of Iulian* (1904) 21.'

5-6 τοισιν||των: the other manuscripts have τοισίνων τ]ι (το V), printed by Gartner, but there is not space for τ]ι in the papyrus. 'TI may have dropped out by haplography before IT' (WBH).

6-7 διεπ]ι]θ]ε]λαμ]ε]νον. So FZOPLE διαβαλλόμενον V. The true reading διαβαλλόμενον (adopted by Gartner) is found in Q, perhaps due to conjecture (Gartner 57); Gartner 63 suggests that the archetype ω had διαβαλλόμενον. In F, what appears to be a second hand has written ἦτοι ε]μ]βα]λ]ο]ε]ν ε]κ κέντις above the line.

8-9 π]ι]γρηεις τ]ε. So LQ (π]ι]γρηει τ]ε); γρηεις τ]ε η. Gartner prints π]ι]γρηεις with the other copies. 'π]ε may be right, although δ]ε follows (viii 12.8 K.; τ]ε η); for τ]ε ... δ]ε, cf. Denniston, *Greek Particles*² 513-14' (WBH). 12-13 ε]π]ι]ε]χ]ε]φ]η]μαεβα. The division is not certain. ε]π]ι] may have been carried over to line 13, although that would leave line 12 on the short side.

13] .]: traces of one or two letters at letter-top level.

Fr. 3

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Top?

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Top?

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Unplaced; perhaps the upper external corner of a leaf.

D. LEITH

5228. GALEN, DE SANITATE TUENDA 5.3, 7, 9 (EXCERPTS)

46 5B.49/C(1-2)a

20.5 × 15 cm

Sixth century

The upper part of a codex leaf. The upper margin is 3.2 cm deep (perhaps the original figure). The edge of the outer margin is preserved in part, and the inner margin survives to a width of c. 1.7 cm (l) or 1.1 cm (→). The width of the column is c. 18 cm. The original height of the written area may have been about 24-6 cm: cf. e.g. the dimensions given for P. Ant. III 182 (MP³ 136.4), assigned by Cavallo to the sixth century, and MP³ 139, of the fifth/sixth century, in Turner, *Typology* 102. A page may then have held 28-30 lines.

The hand is an example of the Alexandrian majuscule, comparable to those of XV 1820 (GBEPP 22b), assigned to the sixth century, and P. Grenf. II 112 (GBEPP 37) of 577 (cf. esp. κ, ω). κ is relatively narrow; the crossbar of π is greatly extended to either side; ρ has a large loop.

Middle stop is used at → 2 and 4. Apostrophe marks elision at ↓ 1 and → 4; it may have been present also at ↓ 8 and → 1. A supralinear bar may represent υ at line end (→ 1).

The preserved text includes parts of chapters 3 and 7 (l), and of chapter 9 (→). Galen's wording is followed closely, except in two cases where a word or phrase has been omitted (→ 5, 9). There is one example of rearrangement: at ↓ 4-9, following the instructions concerning the kinds of exercise appropriate to old men with which the preserved text begins, a short passage from earlier in the chapter is inserted, giving a physiological explanation of why old men need some, but not too vigorous, exercise. Otherwise the focus remains on practical recommendations. There follows the beginning of the discussion of the types of bread to be eaten by old men (chapter 7), and then, when the text resumes, a passage from chapter 9 with recommendations for dealing with constipation. The material on wines and meats in chapters 5 and 6 was no doubt deliberately omitted altogether rather than moved elsewhere. Chapter 4 is largely theoretical. It emphasizes the difficulties in prescribing a general prophylactic regimen for the elderly, addresses some preliminary issues related to terminology and definitions, and describes in detail the daily regimen of an elderly doctor, Antiochus, and that of a γραμματικός, Telephus. Such subject matter may well have been excluded as of less practical utility.

It is possible that the text represents some form of summary of *De sanitate tuenda*, though Prof. Ivan Garofalo has kindly confirmed that it does not correspond to either the *Alexandrian Summary* or John the Grammarian's synopsis of the treatise.

WBH suggests that the papyrus contained not a continuous paraphrase of the whole book, but a series of extracts comparable to those in Aëtius, who draws on the same section of Galen's work at 4.30 (CMG VIII.1 372.1-375.2), on *δίαίτια γερόντων*; cf. also the shorter treatments of the same subject in Orib. *Syn.* 5.18, *Eup.* 1.11 (CMG VI.3 161, 327.6-328.32), and Paul. Aeg. 1.23 (CMG IX.1 19.20-20.16). There are two noteworthy coincidences. First, both Aëtius and the papyrus include Galen's statement that old men differ greatly from each other in respect of strength (5228 ↓ 4; CMG VIII.1 372.15-16) but omit the rest of the sentence, in which Galen explains the difference. Secondly, the papyrus shares with Aëtius an omission unknown to the direct tradition (→ 5), and for which there is no obvious mechanical explanation. There is a further unique agreement in the dative *δεω* at → 4. Admittedly, there are also obvious differences in both selection and treatment, but the resemblances remain striking. As ever, it is not clear how the agreements are to be accounted for, but a common source is one possibility. Cf. in general e.g. M. Capone Ciollaro, I. G. Galli Calderini, 'Problemi relativi alle fonti di Aezio Amideno nei libri IX-XVI: Galeno e Orisbasio', in

↓ (142.7-10, 141.21-4, 147.27-9 Koch = vi 321.10-13 + 329.8-9, 320.7-11, 342.1-3 Kühn)	
	<p>γερουσι εν ωθεν γιγνωμεν[ο]ν η μετ' ελαι[ου] τριψ[ι]ς 142.7 εφεξης δε περιπατοι τε και αμωρσεις ακοη[οι στ]οχαζομενω της του γεροντος δυναμειω ου γ'αρ μικρα της εστιν εν αυτοις διαφορα | ρητιζε 141.21 5 εβαι μεν γαρ αυτων δευται το θεριμον εξελεγχ[η]ται δε κατα τας σφοδρο[τ]ερας κ[ο]ιτησεις αι μεν ουν μεγαλαι φλογες [,] . . . [,] ζοιτος αλλ εαυτα[ι]ς εις εν [ικαναι προς το διασω ξεσβαι τε και [κ]ρατειω] τ[η]ς υλης | προηλον δ οτι 147.27 10 και των αρτων [τους μητ ενδεωσ εχοιτας αλων η ζυμας η φυρα . . .] [. . .] μητε την ε[στ]αινονμεσην [,] [,]</p>

A. Garzya (ed.), *Tradizione e ecdotica dei testi medici tardaontichi e bizantini* (1992) 51-72.

The text has been collated with the edition of K. Koch in CMG V.4.2 (1923), which should be consulted for full information about variants in the direct tradition. The principal manuscripts are M (Marc. gr. 276), probably the only representative of Koch's *a* class (cf. V. Nutton, *John Caisus and the Manuscripts of Galen* (1987) 93 n. 25), and dated to the twelfth/thirteenth century by N. G. Wilson, in G. Cavallo (ed.), *Le strade del testo* (1987) 57, and the *b* class, V (Marc. gr. 282) and R (Vat. reg. gr. 173), both of the fifteenth century. N is the Latin translation by Niccolò da Reggio. There are no variants of particular interest for the establishment of the text of Galen. The papyrus agrees with VR against M (followed by Koch) in the order of the words at ↓ 4. At → 2 it agrees with VR, N, and Aët. in omitting a *τι* present in M and printed by Koch, and it shares a shorter text with VR against M (followed by Koch) also at → 7 (article omitted), and against M and Aët. (followed by Koch) at → 4 (*ε*-omitted). For the tendency of the *b* group to omit words preserved by M, cf. pp. vii-viii of Koch's edition. The papyrus shows that some of the omissions were present at least in the indirect tradition already in the sixth century. There are also omissions of a word or group of words at → 5 (shared with Aëtius) and 9, of a type expected in a work of this kind.

A broken bar, |, is used in the transcription to mark the boundary between two extracts.

→ (54.2-10 Koch = vi 356.1-11 Kühn)

	<p>αλλ ικανως χε θαμλες ουδεν ουδεποτε χρη τω ε[ι]ρημενων λαμβανεν φαρμακων εν με[ι]ν γα[ρ] τω παραχηρμα χαιρουσι ενιοι σφοδρους κεινω θεντες οσω δ' αν μαλλον κενωθωσι τερσο[υ]τι . . . 5 μαλλον η γαστηρ ισχεται κατα τας εφεξης ημερας δια του[τ]ο δ' εχω και traces την κοιμη traces μαλιστα κατα χεμων traces μακραν αρρω [,] [κλυξ]ω δρμιες[ι 10 κλυμασιον αλλ ελαιον ενσημι μου]ον σπερ ουιδεν κωλυει και τοις υγιανοουσ γερουσι ενχ[ε]ν ενιοτε της γαστρος επισχεθεις και γαρ διαβρεχ[η]ται</p>	154.2
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1-4 ($\beta\eta\sigma\phi\theta\sigma\mu$) is transmitted also in *Aët.* 4.30 (CMG VIII.1 372.13-16). His version of the content of line 1 diverges significantly from the text of Galen, but for the rest his text is close to that of the direct tradition.

1 γγομασ[σ]α. Koch prints γομάσων.

1 Γρηβ[ε] is expected but not easy to reconcile with the traces. Perhaps something else was written.

2 δε is omitted in part of the tradition of Aëtius and in Olivieri's CMG edition (372.14).

3-4 δυναμειος [ou γ]ερ. The papyrus, together with M, N, and Aëtius (372.15), preserves the correct sequence, which has been disrupted in VR (followed in Kühn's edition) by the insertion of a passage from later in the book (355.4-158.17 Koch = vi 321.13-329.8 Kühn) between δυναμειος and οὐ γέρ (due to a misplaced bifolium?); cf. p. viii of Koch's edition.

4 εστ[η] εν αυτος[ι]σ[ι] το VR. M has εν αστοις εστιν, printed by Koch. Aëtius (372.15) gives εστι και εν τοις γρουσιν.

7 The traces at the end are illegible, but the transmitted οδδδ ενι χρηζοντι νασι μιν fits the space.

11 η φηρα.], . . . [, η φηρακος η σατηκος εβλειν χρηζι is transmitted, but this does not seem to fit the traces well. WBH tentatively suggests a corruption, η φηρα[μ]η[ς] η [σατηκος εβλειν χρηζι].

1-12 This stretch of text is also transmitted, partly in abbreviated form, in *Aët.* 4.30 (374.24-9).

1 αλλ ικανος γαρ Αετ. has ικανος θε (following an omission).

2 λαμβανει φαρμακων. So VN; R has only φαρμακων, and *Aët.* φαρμακων λαμβανει. M has τα λαμβανει φαρμακων, accepted by Koch.

μ[ε]ν[ε] omitted by *Aët.*

4 σω . . . ησ[ε]ν[ε] . . . : the final traces are indistinct. The direct tradition offers σων . . . ποσόντων (M, accepted by Koch) and σων . . . ποσόντων (VR). In *Aët.*, Olivieri prints εσ[ε]ν . . . ποσόντων, for ποσόντων, the variant ποσόντων (AP) and ποσόντων (P4) are recorded.

κενωθ[η]σεν so VR (κενωθ[η]σας). M and Aët. have εκενωθ[η]σας, printed by Koch. WBH notes that εκενωθ[η]σας was more likely to be corrupted to κενωθ[η]σας (through the influence of the preceding κενωθ[η]σεν) than vice versa.

5 μηλλ[ι]στο[ι] so *Aët.* The direct tradition has μάλλον αυτός, printed by Koch.

εφ[ε]ρ[ε]ν[ε] ε[ε]ρ[ε]ν[ε].

6-12 Much abbreviated in *Aët.* (374.27-9).

7-8 ησ[ε]ν[ε] χημω[ι]σ[ι]ν so VR. κατά τον χημω[ι]σ[ι]ν M, accepted by Koch.

9 The text of Galen, -τιν[ε]ν δε τα[υ]τα διαλ[η]θε[ι]ν ημω[ι]σ[ι]ν ενοχλο[υ]μενοισ[ι]ν ου ελδ[η]σ[ι]ν, is much too long for the space. A supplement of suitable length could be produced by omitting ημω[ι]σ[ι]ν ενοχλο[υ]μενοισ[ι]ν, which may have been considered inessential' (WBH).

11 νερω[ι]σ[ι]ν so M, followed by Koch. VR omit the word, but it was present in the papyrus to judge by the space available.

D. LEITH

5229. GALEN, IN HIPPOCRATIS EPIDEMIARUM LIBRUM III 2.8-9

64.6B.46/E(1-2)c

Fr. 1.5 x 2.9 cm

Sixth century

Plates V (fr. 4), VI (fr. 1-3)

Four fragments of a papyrus codex leaf. → precedes J. No margins survive. There are on average 44-5 letters per line. There will have been c. 55 lines on each page, occupying an area c.

27 cm high, and the column width will have been c. 12.5 cm.

The text is copied in a small, neat hand close to the Alexandrian majuscule of XV 1820 (GBEPP 22b), assigned to the sixth century on the strength of its similarity to P. Grenf. II 112 (GBEPP 37) of 577. There is a marked contrast between narrow and broad letters. The loop of a may be narrow, with straight sides joined at a curved or pointed tip, or triangular with an almost flat base. The flat base of ζ has a short curved tail extending just below the line. κ may be small, or big with a broad gap between upright and branches. There is similar variation in π, which may be broad or narrow; its crossbar does not project on either side. ξ has a long tail. There is some contrast between thick and thin strokes, for example between the thick descending and thin ascending obliques of δ and κ. There is little decoration. The large κ has an upward- or downward-pointing hook on its upper branch. The feet of uprights sometimes have rightward-pointing hooks, and the upright of the large κ has a leftward-pointing thickening at its top.

Elision is consistently marked by apostrophe where it is possible to check (→ fr. 1.4, 2.2, 3.4, 4.7; ↓ fr. 4.3). There is a rough breathing (Turner's form 1, *GMAW*² p. 11) at ↓ fr. 4.6. High stop is regularly employed (→ fr. 4.2, 5, 7; ↓ fr. 4.3). Iota adscript is written in -αι where necessary (→ fr. 3.2, 4.6; ↓ fr. 4.8; added above the line at ↓ fr. 1.4). An omitted letter may have been inserted above the line at → fr. 4.2. A series of short obliques is written above the same line: cf. n. ε1 is written once for short ε (↓ fr. 4.6) and ουθ' for ουθ' before a rough breathing (→ fr. 1.4), as in the other manuscripts.

The section headings were present in this copy: one is preserved in part at ↓ fr. 2.3. It is unclear how these were distinguished from the main text, if at all. There is no reason to doubt the authenticity of the headings: cf. e.g. V. Boudon-Millot, in the *Budé Ord. Lib. Prop.* (2007) 180-81, 136 n. 4. Headings of this sort introduced by *περι* are common enough in papyrus contemporary with Galen (cf. e.g. XXXIX 2891 ii a; XLII 3007 i 25-7; LIII 3708 fr. 2 ↓ 7).

The text has been collated with the edition of E. Wenkebach, *Galen In Hippocratis Epidemiarum librum III* (CMG V.10.2.1 (1936)). The witnesses are L, M, Q, and V. O is the lost archetype of M, Q, and V. H is the Arabic translation by Hunayn ibn Ishāq. Chapter 9 (91.10-95.2) is omitted by O.

The papyrus is of some textual interest. It has a good new reading at → fr. 3.4, and appears to have had another in a lacuna at → fr. 4.6-7. Its word order differs from that of the other manuscripts at → fr. 4.7, perhaps rightly. A difference in the spelling of a comparative at ↓ fr. 1.5 is of less interest. As for new corruptions, the particle γε has dropped out at → fr. 4.3, and there is another uncorrected error at → fr. 4.8. There is a possible agreement with H against L in the truth at ↓ fr. 4.9. A conjectural supplement of Schönle's at ↓ fr. 3.2 is not confirmed, but a less ambitious one of Wenkebach's at → fr. 2.2 may have stood in the papyrus to judge by the spacing.

The line divisions printed are arbitrary throughout.

Fr. 1 (88.25-89.3 W. = xviiA 621.11-18 K.)

γναμη]ν ουκ απ[λοκ παραχωςα μικρον
 γαρ το τοιουτου αλλα πα[ρ]ε[ς] κρουνεν [φ]κω φαινεται
 δη και κατ αυτο τουτο το ε]μπτωμα χειρω]ν η τριτη της
 δευτερας γεγονεναι ου μη]ν ουδ' οτι προσεβη]κεν εν αυτη
 5 υπολαπαρον υποχοδριου ε]νταται ουκ [ουσαν εμπροσθεν
 υπονοησειεν αν τις εκ τουτου τη]ν ημεραν α]νται γεγονεναι
 μετριωτεραν ο τι γαρ αν εμπροσθεν α]παθ]ε[ς]

Fr. 2 (89.10-13 W. = xviiA 622.8-11 K.)

τη]ουτον [α]τρικου θεωρηματος ως
 η τεταρτη της εβδομης επιδηλος] υπ' αυτο]ν του υποκρατους
 ειρηται διοτι των εν αυτη γεν]ομενων [

Fr. 3 (89.21-3 W. = xviiA 623.2-4 K.)

αυτ]ωι κατα τη]ν [ε]μπτωην αν ετεθηκει φαινεται
 δη μοι φιλοτιμουμε]νος προς τον ζη]νωνα μαλλον η ακριβως
 ερεταζων το πραγμα τα]υθ' οση] . [

Fr. 4 (90.12-17 W. = xviiA 623.16-624.5 K.)

εν]ου ποτων' εφη]ν γαρ ου]τως μεταγραφην τωας
 ουδεν εχω] σαφες απε]στιν επι του με]τ[ρα]κου τουτου διοτι
 μητε την πο]ιο[τη]τα μητε την ποσ]ε[τη]τα των γιγνομενων
 5 ποτων γι]ν[ω]σκω' καιτοι πολλ]η]ς ουκ εν αντως διαφορα
 και γαρ εν τωι χρονω]ι διαφερου]ν [ο]ι ποτοι τωας
 μεν εν ημερα]ις δυ]ε[ς] και τρι]ε[ς] ενιοι δ' εν πολλαπλασιος
 τωτων γιγνομενοι και το γι]γνομενο]ν [

↓
 Fr. 1 (90.26-9 W. = xviiA 624.15-18 K.)

χρει]ν σφ]η]ρασθαι βε]βαιον ουδεν υπερ της εξ οινου
 βλαβης γενο]μενης τω] μερα]ικωι το γε μνη]ν ως το πολυ και
 5 τον απαντων οιν]ων αμετρα]τε[ρας ποσεως εστιν και
 των νευρων απο]νο]νται α]ιαι
].. [

Fr. 2 (91.8-12 W. = xviiA 625.11-12 K. +)

πονοι]ς εφ[] ο]ς [ε]ς ευλογον εστι και παραφροσιω]ν
 τινα γενεσθαι και] τον πυρ]ετον οξιν περι του παραγεγραμμενου
 των σημειων χαρα]κτηρος [ο]ς το πιθανον σημαινειν φασιν επει
 δη τα πλειεστα των και]τα το β]εβλιον

Fr. 3 (91.20-22.1 W., om. K.)

ο]ν [ε]υθεως ε]πι του πρωτου χαρα
 κτηρος αν το πιθανον εφασ]αν δηλο]ω]ν ουδα]μοσι
].. [

Fr. 4 (92.10-18 W., om. K.)

ζη]νω]να τ]θ]ε]ται τοις προς
 αυτον πολεμοιςν απαντησει]ς ε]χενουτο] δυο με]εν εριστι
 κωτεραι μαλλον η αλη]θεστεραι· τριτη δ' α]ξι]ολογος πανυ
 και κηλουσα τους ακουοντα]ς οσοι γε περι λεξ]ει]ν ελλη]νικη]ν
 5 εχουσιν η μεν οιν] πρωτη] των εριστικων α]ντιλο]γω]ν ενω]ν
 ηδε πιθανωτερον ε]στιν ο υποκρατης ου πιθανω]ν ενω]ν
 θα οι δε αξιουσι το πιθανον ε]ς] του χαρακτηρος [ε]η]μιανε
 σβαι προς ο παλι]ν οι βο]θη]θουτες τ]ω]ι []η]ρω]νι ε] φασιν εαν μεν
 αυτο το πρωτοτυπον ονο]μα παρα πα]λαιωι

Fr. 1

- 1 Wenkebach's (τὰ) before π[α]ρ[ε]χ[ο]υ[σ]εν has been omitted from the supplement.
 π[α]ρ[ε]χ[ο]υ[σ]εν[ος] παραρ[ο]υ[σ]ει[σ]α O.
 4 οὐδ' ἐτι with the other manuscripts, L οὐδ' ἐτι (Wenkebach's correction). For οὐδ' representing οὐδέ a rough breathing, cf. *Colgias. Giannuzzi 197*.
 5 Wenkebach's (τὰ) before π[ο]λυκ[α]ρ[ω]ν has been omitted from the supplement. (Better τῆς); cf. A. Wifstrand, *Eiketa vii* (1938) 42¹ (WBHf.)
 [τ]ραυ[σ]α with L. ἐτραυ[σ]α O, printed by Wenkebach, with the lemma (84.3-4 W. = xvIIA 614.10 K). The first trace is an upright on the edge with blank space to the right before ν, not suiting ε.
 6 τῆς ἡμέραν with L τῆς δευτέρας ἡμέραν O, accepted by Wenkebach. Wifstrand (5 n.) 41-2 observed that the reference of τῆς ἡμέραν is to the third day, not the second: "δευτέρα" ist gedankenlose Interpolation der Vorlage der O-Gruppe" (42). The papyrus provides welcome confirmation of L's reading: there is no room for δευτέρα' (WBH).

Fr. 2

- 1 του (restored) is a conjectural insertion of Wenkebach's. To judge by the length of the line, it is perhaps likelier than not to have been present in the papyrus.
 4 Tops of letters, scarcely identifiable.

Fr. 3

- 4 τ[α]ν[θ] ἡμε[ρ]α[ν] . . . [. The other manuscripts read τὰν[θ] δ' Ἐραστῆνος here. The reading τ[α]ν[θ] seems to be confirmed by the apostrophe. Following that is the top part of a round letter, α or θ, and the π is clear after that. Then follows what most closely resembles the upper part of ε (ε is palaeographically possible). The traces become too badly damaged from that point. Perhaps the scribe failed to recognize the ethnic, and wrote something like ἡμε[ρ]α[ν] ("The papyrus restores the correct reading, τ[α]ν[θ] ἡμε[ρ]α[ν] φ[ι]γ[γ]ου[σ] of β, the top of the upright and the top and edge of the loop are visible, and of φ, the top of the upright, projecting above the letter-top level. In the other copies ἡμε[ρ]α[ν] φ[ι]γ[γ]ου[σ] has been displaced by a supralinear gloss beginning with the same letter, δ Ἐραστῆνος, and τ[α]ν[θ] adjusted to τὰν[θ], but Galen had no reason to name the subject here; cf. § fr. 3.2 n." (WBHf.)

Fr. 4

- 2 εν[ι]ου[σ]α'; the other manuscripts have ἐνόου, printed by Wenkebach. The supralinear trace may represent the omitted ε.
 There are four tiny diagonal strokes (////) above εφ in a lighter, browner ink. Their function is uncertain. (Perhaps a reference mark attached to the cross-reference in the text" (WBHf.)
 3 ετι: ἐτι γα LO, printed by Wenkebach.
 4 γυγνομενον (restored) with L (cf. γιγνομενον below at 8); γυνομενον O. Wenkebach corrects to γυνομενον.
 6-7 διαφέρουσι [οι ποτα τρεσε μεν εν ημερα] is too short for the gap. The papyrus had, and Galen wrote, διαφέρουσι [αλληλων οι ποτα, αλληλων is expected; cf. e.g. in this work 1.4 (16.19-20, 18.7-8, 18.24 W. = xvIIA 106.7-8, 508.13, 509.12 K.) ετέρων γυνοει αλληλων τῆν κριου διαφρονου, διεντροχεν αλληλων τὰ πᾶν ταῦτα, αλληλων διαφρονου, 3.1 (110.17 W. = xvIIA 649.13 K.) διαφρονου δ' αλληλων αι κατασκευε, 3.57 (143.9-10 W. = xvIIA 707.9-10 K.) διαφέρουεν αλληλων οι ανθρωποι" (WBHf.)
 7 εν ημερα]ς δε[ι] και τρη]ς[ι] ημερα]ς, read and supplied here by WBH, follows τριε[ν] in the other manuscripts. O, supported by H, has ἐν δευ[τε]ρα, while L has only δύο. Wenkebach, following O, prints ἐν δευ[τε]ρα και τριε[ν] ημερα]ς.
 8 γιγνομενον read and supplied by WBH, who notes that the corruption of the πωρομενον given by the

other sources and printed by Wenkebach will be due to the influence of γυγνομενον shortly before; it too was no doubt spelt with γυγ-, as in L and in Wenkebach's text (cf. § γιγ[γ]νομε[ν]ου), rather than with γυ-, as in O.

J

Fr. 1

- 1-2 The identification is uncertain. WBH tentatively suggests for line 2 ω[μ]η[ρ]η ρη[θ] [] ρ ημ[ε]τη[ρ]ος (90.25 W. = xvIIA 624.14-15 K).
 5 αμετροτε[ρ]α[ς]: the other manuscripts have αμετροτε[ρ]α[ς], printed by Wenkebach.

Fr. 2

- 2 κα[ι] του συμ[ε]ρον ε[σ]τιν σο L, followed by Wenkebach. O has only κα[ι] (omitted by Q) πορο[ν].

Fr. 3

- 2 εφ[α]κεν δηλο[ω]ν. The identification of the traces at the start is uncertain, but it is in any case clear from the space available that the papyrus did not include οι περι τον Ζηρωου (Schöne's supplement, placed in the text by Wenkebach) before δηλο[ω]ν.
 3) . . . [. WBH tentatively suggests βαβλω[ι]τ ερηγ[υ]θαι (92.1 W).

Fr. 4

- 6 πιθανωτερον restored with Wenkebach: πιθανωτερα L.
 πιθανω[σ]ι L. πιθανω. It is not clear whether or not the spelling was corrected.
 6-7 ενταυθα οι restored with L. Wenkebach emends to ενταυθοι.
 9 παρα παλαιου. L has παρ' απολλωνου; παρὰ παλαιου, printed by Wenkebach, is Schöne's correction (cf. H, 'das Stammwort, das einer von den Alten erwähnt hat'). The final trace could suit ο as well as α, but no apostrophe was written, and one might have expected one if the papyrus had L's reading.

D. LEITH

II. NEW MEDICAL TEXTS

5230. HERAS, *NARTHEX* (?)

68 6B.35/H(1-2)d

Fr. 1.2.2 × 6.7 cm

Early second century
Plate VI

Three fragments with text running along the fibres. Fr. 1 and 2 are blank on the back, but there are exiguous damaged remains of four lines in a tiny hand on the back of fr. 3, running in the same direction as the text on the front. No margins survive. A line held about 18–23 letters, and the column width was about 7 cm.

The text is written in an informal round hand. It is generally bilinear, but ρ and ϕ or ψ (fr. 2.3) descend below the line. Letters are very often joined. σ has a rounded loop; ϵ has a high crossbar that may touch the upper arc and extend beyond the bowl to touch the next letter; η has a high crossbar and may be looped at the upper right-hand corner; ν is V-shaped and looped at the base; ω is particularly broad, in one movement, looped in the middle. There is a close resemblance to P. Lond. Lit. 132 (*GLH* 13b), assigned to the early second century. An objectively dated document in a similar hand is PSI IX 1062, of 104–5.

There are no lection signs and no punctuation where it might be expected (fr. 1.8, 16). Iota adscript is not used at fr. 1.15.

Fr. 1 overlaps with Gal. *Comp. Med. Gen.* 5.2 (xiii 765.15–766.6 K.), part of a recipe for a plaster quoted from Heras of Cappadocia's pharmacological collection, often referred to as the *Narthez*, on which cf. C. Fabricius, *Galenus Excerpte aus älteren Pharmakologen* (1972) 183–5; K.-D. Fischer, *Galenos* 4 (2010) 173–80. Fr. 2 and 3, however, do not seem to contain a known text. The simplest hypothesis is that the papyrus is a copy of Heras' manual, though it may be a copy of another compilation which, like Galen's, incorporated material extracted from it. A later example of such excerptation from Heras is provided by P. Berl. M6ller 13 (MP³ 2382), assigned to the late third or early fourth century. This papyrus preserves a recipe to combat hair loss from Heras' *Narthez* which, except for a few minor textual variants, agrees with Galen's extensive quotation at *Comp. Med. Lac.* 1.2 (xii 430.8–15 K.). In this case, the Heras recipe seems certainly to have been excerpted, whether directly or indirectly, since Galen also quotes the text that follows immediately in the *Narthez*, but this is not present on the papyrus: see M.-H. Marganne in Pap. Flor. VII (1980) 179–83. A little later again, two plasters of Heras are preserved in P. Mich. XVII 758 (MP³ 2407.01), of the fourth century (at A 6–13, E 5–8; cf. also B 2–4). P. Berol. inv. 16111, to be published by Anna Monte, represents a case similar to that of the present papyrus, in that it preserves two consecutive recipes quoted by Galen from Heras' *Narthez*, but these are preceded by additional recipes not found in Galen's compilation.

Fabricius, op. cit. 242–6, argues that the composition of Heras' drug book is to be placed between 20 BC and AD 20, as it included a recipe for theriac used by Aelius Gallus during his campaign in Arabia in 25/24 BC (Gal. *Ant.* 2.17 (xiv 203.5–6 K.)) and was cited by Celsus

(5.22.3, 5.28.4E, 6.9.5 (CML I 208.30, 239.15, 283.24)), probably during the reign of Tiberius (V. Nutton, *Ancient Medicine* (2013) 376 n. 63).

The plaster quoted by Galen is according to him a famous one: it is 'known to all', and a reputable example of $\sigma\theta\alpha\delta\iota\chi\eta\sigma\tau\epsilon\alpha$, drugs which are useful for a variety of different ailments (*Comp. Med. Gen.* 5.1 (xiii 764.12–18 K.)). He cites it to illustrate the propriety of mixing together in compound drugs ingredients with opposing properties: according to others, this served only to cancel those properties out (e.g. Gal. *Comp. Med. Gen.* 1.1 (xiii 364.11–365.13 K.)). The plaster is said to be effective against a variety of different types of wound and in promoting cicatrization.

As for the material in the papyrus that is not known from Galen, fr. 3 offers nothing comprehensible, while fr. 2 preserves part of an anodyne drug, perhaps some sort of lozenge or drink, to soothe colic (among other things). It seems to be unconnected to the wound plaster of fr. 1.

For the manuscript tradition of Galen, *Comp. Med. Gen.*, see D. Manetti in CPF I 2*, pp. 14–15, and in V. Boudon-Millot et al. (edd.), *Storia della tradizione e edizione dei medici greci* (2010) 129–42. I am extremely grateful to Alessia Guardasole for sharing with me her collations of M (Laur. plut. 74.25) and O (Hau. GkS 225.2*), and to Daniela Manetti for her collations of C (Vat. reg. gr. 172). The papyrus offers new readings at fr. 1.14–15, where it seems to have had a superior text. Another new variant, at fr. 1.8, seems to be corrupt.

The line division in fr. 1 is suggested *exempli gratia*.

Fr. 1

], [], [
	] που[	] ἀπούλωσιν. ποιεί
	] καισι[	μέντο); και επί τῶν χειρῶν
	] κωκα[	ων ἑλ]κῶν καὶ τῶν ἄλλων
5	] αραπλη, [	τῶν παραπλη[ίων ἄκρας
	] εγαρτλου[	τοῦς τ]ε γὰρ τῶλου[ε τήκει και
	] αυταγνη, [	μετὰ τ]αῦτα γνη[ίαν σάρκα γεν-
	] καλην, [	νῆ λίαν] καλην, κ[ηροῦ λ[ι(τρας) β, φου-
	] . . . υξυ, [	κτῆς] λ[ι(τρας) , ἰοῦ ξυ[τροῦ οὐγ(κίας) σ, μάν-
10	] . . . [ ] ουκ, [	νης οὐγ(κίας) γ, ἑλ[α]ίου κρ[υ(ύλας) ε, δξου ε(έκτην)
	] . . . [ ] ατα[	α. τὰ τ]ηκτ[ῆ] κατὰ τῶν ξηρῶν.
	] . . . [ ] ω, [	χρ(ῶ) τῆ ἐμ]πλ[ῆ]ς τρ]ω π[ρ]ος τραύ-
	] . . . α[] ειμε, [	ματα, κ]αὶ ἀ[] ειμέν[η] δὲ σὺν ῥο-
	] . . . ποιω, [	δίνω π]υσοπιῶ, [c. 9
15	] ωτηθε, [	τῆ κηρ]ωτῆ δὲ ἐκ[λυθείση ε]κ
	] , σωτι[	ἀπούλ]ωσιν. τινέ
] [] [

1], [, letter feet, the second apparently an ascending oblique 2], [, low horizontal, e.g. α, not ε
 3], [, lower part of vertical 5], [, lower arc of a circle; low trace 7], [, left-hand arc of a circle (ο, ε)
 8], [, high trace of upright], [, vertical joined from right at mid-height, κ rather than η 9], [. . . two
 high specks, one above the other; gently rising horizontal touching vertical above mid-height, followed by
 lower left-hand arc of a circle], [, left-hand arc of a circle (ο, ε) 10], [, high speck, lower left-hand
 arc of a circle, trace on line], [, upright κ], [, high speck 11], [, perhaps cross-bar and second
 upright of η; perhaps ends of the branches of κ; low trace], [, perhaps end of upper branch of κ, trace below
 of high crossbar (σ, γ) 13], [, upright joined by oblique at foot, consistent with αι or ν], [, beginning
 on line 14], [, low trace; lower arc of circle (θεο)], [, low loop, e.g. α or κ (cf. 10) 15], [, ε or θ;
 top of upright? 16], [, right-hand arc of a circle 17], [, upper arc of a small circle, e.g. ρ

... cicatrization. Furthermore, it works excellently in the case of Chironian sores and in other similar cases, for it both dissolves the scabs and after this generates genuine flesh. Very good. 4 pounds of wax, 3 (?) pounds of "toasted" resin, 6 ounces of scraped rust, 3 ounces of frankincense, 5 kyolai of olive oil, 1 xestes of vinegar. The soluble over the dry (ingredients). Use the plaster against wounds, diluted with rose oil for producing pus and (cleaning (?)), and diluted with cerate for cicatrization. Some . . .

Fr. 2

	] . . . αεδ, [ ] , [	] . . . τας δ, [] , [
	] κηανωδων[	] κη ανωδων[
	] ωπροστρο, [	] ω προς ετροφ[ους
	] , εισομε, [	] , εισομεν[
5	] , ανα, [	] , ανα, [
	] , γρ, [	] , γρ, [

1], [, foot of vertical with small right-facing serif; short vertical with left-facing serif, topped by horizontal touching α at mid-height 2], [, foot of vertical with small left-facing serif], [, small low arc rising from left to right; foot of vertical 3], [, lower arc of circle (θεο); lower parts of φ or ψ 4], [, prima facie the tail joined from below by the ascending oblique of λ, but α is not excluded; cf. 4, 5], [, top of vertical 5], [, low trace on a single fibre], [, foot of ascending oblique 6], [, apparently upper right-hand part of α], [, top of vertical

Fr. 3

	] αουνη[
	] . . . εις, [
	] . . . υ[
	] προπ[
5	] που[
	] ην, [
] . . . [

2], [, high traces], [, ε or σ abraded on right 3], [, horizontal joining upright at mid-height, η, τ]ι or perhaps ε] possible; ends of branches of σ or possibly χ 6], [, upright on edge 7], [, horizontal at mid-height with damaged traces above; perhaps ε] trace touching preceding horizontal

Fr. 1

2 ἀπούλωσιν with CMO as consistently in this word and cognates (also e.g. at xiii 765.13, 14 K): ἐρ-
 Kühn.

8 καλήν. Kühn gives λευή, but CMO have καλή, which is clearly right. Cf. the plaster of Menoetius quoted from Heras, described as λαν καλή immediately before the ingredients are listed, at *Comp. Med. Gen.* 2.10 (xiii 512.1-2 K). Also e.g. *Comp. Med. Gen.* 1.19 (xiii 455.15 K = Damoc. p. 104.2 Bussemaker) λευήν καλήν ἔμπλαστρον, 4.14 (xiii 747.18 K; Heras) ταύτης καλλῶν ἔμπλαστρον οὐκ ἔστι, 4.14 (xiii 752.18 K)

Form des philosophischen Kommentars', in J. Pépin, H. D. Saffrey (edd.), *Proclus: Lecteur et interprète des anciens* (1987) 1–20, at 14 with n. 52). Compare perhaps the later Neoplatonic formal distinction between the *θεωρία*, concerned with the exposition of the doctrines underlying a passage, and the *λέξις*, which addressed more specific matters.

A terminus post quem for the composition of the commentary is given by the reference to Asclepiades of Bithynia at i 12. Asclepiades' dates are disputed, but even if he was not dead by 91 BC, as argued by E. Rawson, *CQ* 32 (1982) 358–70, his death should not be pushed more than a decade or so later than that: cf. R. Flemming, in D. Sedley (ed.), *The Philosophy of Antiochus* (2011) 55–79, at 67–9.

A general hostility to Asclepiades is evident in the text, but further clues as to the author's broader methodological commitments are furnished by the nature of his criticisms. He attacks Asclepiades' overall approach to the source text, in that he described the nature of Silenus' illness and its causes as it developed and presented different accompanying symptoms (i 9–13). The commentator, by contrast, presents himself as someone who is interested only in therapy, with the implication that a discussion of the nature and cause of the disease will be irrelevant in this respect, and who finds this concern to pin down the disease and its cause inappropriate (i 13–16). He also refers to 'self-evidence' (*ἐνάργεια*, 17) as a means of gaining an idea of the disease. Complaints about wasting time on discovering causes, which do not contribute to treatment, and about focusing on what is hidden rather than what is apparent, are characteristic of the anti-Dogmatist polemics of the Empiricist, and later Methodist, medical sects. Hippocratic exegesis, however, was a prime concern of the Hellenistic Empiricists, and the *Epidemics* were particularly prized by them. On the other hand, commentaries on Hippocratic writings by Methodists are very poorly attested: Thessalus of Tralles wrote a single book refuting *Aphorisms* in the mid-first century, while Julian in the mid-second wrote 48 books against the same work (*Gal. Adv. Jul.* xviiiA 247.12–248.7 K. = CMG V.10.3 33.19–34.9), though the polemical aim of these works may undermine their classification as true commentaries; for doubts that Soranus wrote Hippocratic commentaries, see A. E. Hanson, M. H. Green, 'Soranus of Ephesus: *Methodicorum principes*', *ANRW* II 37.2 (1994) 968–1075, at 1018–21. The Empiricists were among Asclepiades' principal ideological rivals, and they were certainly eager to criticise him in turn. If the author of the commentary saw himself as belonging to one of the medical sects, then this was almost certainly not one of the Dogmatist sects, and more likely the Empiricist than the Methodist.

Before Galen, only a few commentators on *Epidemics* are known to us: cf. in general S. Ihm, *Clavis Commentariorum der antiken medizinischen Texte* (2002). Galen states that the Empiricist physicians Zeuxis (probably second century BC) and Heraclides of Tarentum (fl. c. 75 BC) wrote commentaries on all of Hippocrates' works: *Hipp. Off. Med.* i praef. (xviiiB 631.15–632.1 K.) *δοῦν μὲν εἰς ἅπαντα βιβλία Ἱπποκράτους γράψαντες ἰστομύμητα Ζεύξις τε καὶ Ἡρακλείδης, οὐκ εἰς πάντα δὲ Βασίλειος καὶ Ἀσκληπιάδης (ἀλλὰ τὰ ὑπελόγητα (ἀλλὰ τὰ) tentatively supplied by H. von Staden, in C. W. Müller et al. (edd.), *Arzte und ihre Interpreten* (2006) 18 n. 12). On the interpretation of 'all the books of Hippocrates', see H. von Staden, in C. Gill et al. (edd.), *Galen and the World of Knowledge* (2009) 153–5. Of the figures*

named by Galen, Bacchius the Herophilan (fl. 80) and Zeuxis prelate Asclepiades, and can thus be ruled out as authors of the present text. In his commentary on *Epid. I*, Galen refers to certain comments made by the first-century doctor Quintus (*Hipp. Epid. I* 1.1, 2.7 (xviiA 24.11, 99.13 K. = CMG V.10.1 17.3, 52.26)), but since Quintus published no written works of his own, it seems likely that these were transmitted to Galen by Satyrus, his teacher at Pergamum and a former pupil of Quintus. In any case, the date of the papyrus should rule out Quintus too.

This leaves the famous Empiricist Heraclides of Tarentum as the only known Hippocratic commentator for whom we have any indication that he wrote a commentary on *Epid. I*, though there may well have been others of whom we know nothing. On Heraclides' Hippocratic commentaries, see e.g. von Staden, loc. cit. 151, with bibliography. Galen does not specifically mention a commentary of his on *Epid. I*, but that will be due to his tendency not to name earlier commentators in his own 'private' commentary on that work (von Staden, loc. cit. 141). Asclepiades' authority as a Hippocratic commentator may not have lasted long: Galen is aware that he wrote a number of Hippocratic commentaries (see above), but mentions him very rarely in this connection, citing only his commentary on *In the Surgery* by name. Erotian's Hippocratic glossary mentions Asclepiades only once (*C* 23, p. 78.14–18 Nachmanson), quoting likewise from his commentary on *In the Surgery* on the meaning of *κέκλυται*. Caelius Aurelianus mentions Asclepiades' commentary on *Aphorisms* on one occasion (*Cel. Pass.* 3.1–5 (CML VI.1 294.22–5)). His prominence in 5231 (i 12, with a back-reference in *ὡς ἐφημι*) may suggest then that this commentary was composed closer to his lifetime, and so perhaps in the first century BC. This could point to Heraclides of Tarentum, but in view of the poor state of our evidence for Hippocratic exegesis in this period such hypotheses remain mere speculation.

It is an obvious conjecture that the commentator is referring to a commentary by Asclepiades himself on *Epid. I*, for which there has hitherto been no direct evidence: it is difficult to imagine in what other context Asclepiades could have discussed this case history in detail. Only Asclepiades' commentaries on *In the Surgery* and *Aphorisms* are named explicitly in the sources, but we know from Galen, quoted above, that he wrote other works of Hippocratic exegesis. It may be that the separation of the *Epidemics* into three groups, viz. *Epid. I* & *III*, *Epid. II*, *IV* & *VI*, and *Epid. V* & *VII*, each judged to enjoy decreasing levels of authority, did not occur before the influential edition of the Hippocratic Corpus by Dioscorides and Artemidorus Capiton in the late first or early second century AD (see W. D. Smith, *The Hippocratic Tradition* (1979) 234–9, and in vol. vii of the Loeb Hippocrates (1994) 1–2). It is possible that Asclepiades' exegesis of *Epid. I*, composed around the later second century BC, formed part of a larger commentary on the whole of *Epid. I–VII*. Galen's immediate predecessor Sabinus, in commenting on the ethnicity of a patient described in *Epid. III*, cited an observation by Asclepiades about the effectiveness of phlebotomy in Parium (*Gal. Hipp. Epid. III* 3:76 (xviiA 739.1–2 K. = CMG V.10.2.1 161.19–162.1); see D. Manetti, A. Roselli, in *ANRW* II 37.2 (1994) 1616). But there is nothing to suggest that the Asclepiadean text that Sabinus consulted was specifically a Hippocratic commentary, or concerned at all with this passage of *Epid. III*. Asclepiades' observation was apparently well known, and was certainly made in book 2 of his treatise *On Acute Diseases* (*Cael. Aur. Cel. Pass.* 2.22.129 (CML VI.1 218.19–24); cf. also *Gal. Med. Exp.*

26.6 (p. 142 Walzer), where a lapse of memory may be responsible for the slight differences in the report). Likewise, as Manetti and Roselli point out (1616–17), the report at Gal. *Hipp. Epid.* VI 55 (xviiB 246.6–247.5 K. = CMG V.10.2.2 270.18–31) need not be derived from a commentary on that work.

What can we glean from our text about Asclepiades' exegetical approach in his commentary on *Epid. I*? As we have seen, our commentator notes that he dealt with the nature of the disease and the causes of its various symptoms, and not only with therapy (cf. i 19–13 n.). Asclepiades evidently tried to identify the particular disease from which Silenus had suffered. His account of the causes of the disease presumably made use of his particulate theory of matter, according to which the human body, like all matter, is made up of invisible particles named *δύκοι* which are moving incessantly through void gaps; health consists in their balanced motion, while the majority of diseases are caused by their obstruction in different parts of the body. Asclepiades' explanation was apparently presented as coherent enough to account for all of the concomitant symptoms recorded in the Hippocratic case history (cf. i 11–12 *παρὰκο-λουθητέων*[*τῶν*]). In his own commentary on the Silenus case, Galen states that his disease was almost identical to phrenitis, except for the fact that it involved heaviness of the head (*Hipp. Epid.* I 3.19 (xviiA 264.3–8 K. = CMG V.10.1 132.22–6)). Galen also happens to have preserved some details of Asclepiades' account of the motions of the *δύκοι* in the different stages of phrenitis (*Med. Exp.* 28.3 (pp. 146–7 Walzer, from the Arabic)); cf. J. T. Vallance, *The Lost Theory of Asclepiades of Bithynia* (1990) 108–17. His report may give some idea of the possible content of Asclepiades' description of Silenus' disease:

Burning fever inflames the membranes of the brain, and it results from this that the corpuscles [i.e. the *δύκοι*] make their way to the finely divided part, or those of them which do so become extremely fast and violent in motion all at once; this is followed by an obstruction of the corpuscles in the pores, which causes the disease known as phrenitis. Thereupon what lies beneath the cartilages spreads upwards, being attracted by the finely divided part. Now, when the very numerous corpuscles rise and rub against the resisting parts, they are repelled. After this they return to the roomy parts which are capable of receiving them, and for this reason the bowels are loosened. Since this is the case, it is therefore necessary for the origin of the burning fever and its accompanying symptoms to come first, after which phrenitis follows, then comes the upward attraction of the regions of the cartilages and the phrenitis is followed by the loosening of the bowels.

This combination of mental impairment and looseness of the bowels matches extremely well the symptoms experienced by Silenus: the Hippocratic author repeatedly reports that the patient suffered from a considerable looseness of the bowels, especially on the first, second, third, eighth, ninth, and tenth days. All this took place together with his worsening mental condition, which started to deteriorate on the second day. We may take it that Asclepiades will have tried to explain in a similar manner most of the symptoms that Silenus suffered—not just his

mental problems and his loose bowels, but also his pain in the loins, heaviness of the head, and so on—attempting to give each a coherent explanation as part of a single pathological process. It is then not difficult to see how anyone who did not subscribe to Asclepiades' theory of matter could find an explanation of Silenus' disease along these lines a pointless and frustrating diversion, to be contrasted with the information available through 'self-evidence' (*ἐνάργεια*, i 16–19).

The commentator next portrays Asclepiades as being excessively concerned with the periodicity of the paroxysms over the course of the eleven days of Silenus' illness (i 19–21). Periodicity certainly formed a major part of Asclepiades' pathology, and observation of paroxysms directly determined when certain treatments, such as prescribing food, could be administered. Asclepiades rejected, however, the Hippocratic conception of critical days, maintaining that crises could not be predicted based on a preconceived theory (cf. i 19–24 n.). In Silenus' case history, the Hippocratic author confirms that there was a general intensification or paroxysm of the disease on the third day, and the same on the fourth, but there are no further explicit references to paroxysms in the source text. The anonymous commentator seems to object that the summary details recorded in *Epid. I* are insufficient to support the sort of detailed analysis of paroxysms which Asclepiades provided in his commentary (i 24–32).

There was also a further aspect of Asclepiades' procedure which the commentator found particularly distasteful (i 32–9). There is almost no reference to treatment in the source text, but Asclepiades seems to have imagined himself visiting Silenus as one of his own patients, and to have described how he would have treated him on each successive day of his illness. Perhaps one could imagine a pedagogical focus for this more clinical perspective, but the commentator was keen to make it appear inappropriate. The commentator notes in particular that Asclepiades claimed 'to know nothing of what resulted' (i 37–8), which must refer to Silenus' eventual death.

Asclepiades' commentary on the case histories of *Epid. I* seems therefore to have been a rich one, combining a comprehensive diagnosis of the disease, a concern to explain all the associated symptoms mentioned, an analysis of its periodicity, and a therapeutic interest absent from the original case history.

The lemmata of 5231 offer a few new readings. There are omissions due to *saut du même au même* at i 2 and ii 13 (in the restored part), and apparently another uncorrected error at i 2 (*ὀνοράειος* for *ὀνόραειος*). There are minor variants, not affecting the sense, at i 1, 3–4, and 5, and an agreement with the other witnesses where editors emend at ii 9. The contracted form *πρωεῖν* is given at ii 9 where the other witnesses have *πρωεῖν*. For manuscripts and editions, see on 5222.

Col. i

ποικιλῆσμαι
 ὀνομαστεις
 κεντρικαλιν
 ἰβεκατρη
 ἰδὲ ταιταικαι
 ἰμιαραρισμε
 ἰπαλοσυνε
 ἰριεταεικος
 ἰκεντρουπα
 ἰεκαστογαιαν
 ε [. . .] ἰρακολουθρασ
 ἰνακλιπιαθρῶσεφην
 ἰευραφηνειυθεραπει
 ἰυτομονπροθεμενοι
 ἰειυδικολιακειοτωστα
 ἰειτοπρα [] , επιμεγαρ
 ἰεναργειασεμπηταιω
 ἰμησαφηνιατροσου
 ἰουλαβειυαλουσπαρο
 ἰοικαιδιαλεμιασιν
 ἰπαρηκολουθρσενικαι
 ἰοικεκαστατωνπροσυγο
 ἰωδινγοσθαπαραμε
 ἰνευτοισδετωστα , α
 ἰποκρατουσειρημνοι [] , υ
 ἰπρωδιστωστονεν [] , υ
 ἰ , γαλλωσπερηιδρ [] , υ
 ἰ , οσβολομεουταχαλι
 ἰπατακαιιαιελοτατων
 ἰποηδιηγρσελ [] , καθα
 ἰπακαταγινωσνοεικ , υ
 ἰηβ , ναϊ , καμηνκαϊτο
 ἰεναμειντασυμβαιτα
 ἰηρωλεγειυθετρη
 ἰε , ειασκαρεκαθριε
 ἰ , σιατραπροσντοσποι
 ἰνομηθρῶσενικωσκει
 ἰποβαντωνδωσπιαν
 ἰαδινχεριμασπαλ , γυπι
 ἰαλλοι , [] , [] , κ , [] , ε , ε
 ἰαρεικω [] , [] , []
 ἰ , α [] , [] , ω []

Col. ii

προστακασ []
 ποανωγ []
 φιλιτροικω []
 σν , φθρσ []
 ρη [] , ἰπιατ []
 οτανωα []
 καισπονωα []
 κωικωσπη []
 ποικωικω []
 βαροσκατρη []
 ποδοκ []
 ακρη []
 λιαδ []
 ς , α , . . . []
 σασπει []
 μηθη [] χρ []
 παρασμη []
 οσοις []
 ασιανωα []
 αιδωσμε []
 θρωσου []
 κησπαρχ []
 αιτωνωα []
 σοικατατ []
 νοηναικα []
 τασεντροικ []
 εποικεμει []
 ηροικωσρικ []
 φεισιν , γεω []
 δεκαλικωσ []
 εβανωσν []
 νοηθητη []
 διημαρτα []
 γαδιμαρ []
 ηρωαφο []
 ιδεωδησ []
 σιωτιασει []
 θησωνωα []
 θρωσων []
 γησνασιν []
 θρωσισποη []
 τακεφα []
 ποαλα επ []

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Col. i

θπων λεποτ : ἀπὸ κοιλῆς θμο·
 α· σῆρην ἀβρ[θον] ὀποστέαιε
 κρημῶνθς, λ[ισα], και πάλιν
 ἔκρια ψυχρά.] ἐνδεδιτ ἀπέ-
 θανεν. ἐξ ἔφρ[χ] δὲ τοῦτῃ και
 διὰ τέλος πνε[υμα] ἀραῖον, μέ-
 γα· ὀποκτοθρ[ιο] καλῶσ συνε-
 χης· ἡλικιῶσ περὶ ἑτα ειακω.
 τῆμ κατω[κ]ενῶν τοῦ πά-
 θουσ και τῆσ καθ' ἑάστων αἰτῶν
 ὄσων ἐξ [] ἰων παρκολουθρ[σ]·
 τ[ων] Ἰσκλητ[ω]ν ἰατρῶσ, ὡσ ἔθην,
 συν[έ]γραψεν· ἡμῶν δὲ θεραπει-
 αν αὐτὸ μόνον προθεμῶνοι
 εὑθρεῖν δυσκολίαν εἰκότως πα-
 ρε[λ]χει τὸ πρῶθ[μ]· ἐνὶ μὲν γὰρ
 τῆ[] ἀναργείασ ἐνῆ πάντωσ
 τω[] ἐμὴ σάθῃ τωα τῆσ νόσου
 λόγ[ω]σ λαβεῖν. ἀλλὰ ὄν παρ-
 ζου[]μοσι και διαλεμῶσων
 . . .] παρηκολουθρῶσ και ἐ-
 κει[]νοισ ἑάστω τῶν προσγο-
 με[]νων διηγορέμωα παραμε-
 τρη[]εῖν ἐν τοῦτωσ δὲ τοῖσ παρὰ
 Ἰπ[]ποκράτωσ εἰρημνοῖσ] σὺ-
 .] μῶδωσ τοσῶτων εὑθ[]εῖν
 ὄθῆν, ἀλλ' ὡσπερ ἀπὸρσ[]εῖν
 τῆσ βοουλομένου τὰ γαλε-
 π[]ώτατα και ἀνελοθῶσ τῶν ἐν-
 θρω[]πων ἢ διηγρῶσθε[] ἰαθα-
 ρω[]σ ἢ κατὰ τῆμ νόσων εἰσωσ
 . . .] ἰσ εἶνα, και ἡμῶν και τὸ
 . . .] ἀκ[]θῶσ μὲν τὰ συμβάντα
 τῶ Σάλητῶ, λέγεισ δὲ τῆν ἐ-
 πω[]λέθεων ὄσωνσ καθ' ἡμέ-
 ρω[]σ εἰκότως πρὸσ αὐτῶν πο-
 οῖμ[]μενον μερῶν γινώσκεων
 τῶν ἀπὸβάντων, δυναστων
 τινά και δυσχρεῖων τῶ λόγῳ τί-
 θησιν] ἄλλωσ [] , [] , κ , α [] , ε [] ,
 . . .] ἰαρεικω [] , [] , [] ,
 . . .] , ω []

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Col. ii

πρὸσ τῶ και τ , []
 πον ἀνωκ []
 κυνοφθῆσ []
 ἐπ[] ἰσ] πλαι[]μῶνοισ πληρε-
 ὀν τῶν Εὐαλ[]κίδωσ· ἐκ κόπων
 και πόνων και [] γυναικῶσ ἀ-
 κωῖρων πῶρ [] εἰωθεν· ἤρξτω δὲ
 πονεῖν και ὄσρῶν, και μεγαλῆσ
 βάρωσ και τραχίηλωσ συνάσασ·
 ἀπὸ δὲ κοιλῆσ τῆσ πρώτῃσ χολώδεωσ,
 ἀκρη[]τω, ἐπαρωσ, κατακάρωσ πολ-
 λά δι[]ήλθεν· ὄσρωσ μελαινωσ ὀπό-
 στωσιν ἐξ [] ὄνωσ, διψῶσθωσ, γλῶσ-
 σασ ἐπι[]τηρῶσ· νικητόσ σὸδὲν ἐκω-
 μῶθη· χρ []
 παρωσμη []
 ὀσων ἰχρ []
 ασαι πῶσ ὀδ []
 αι δέξωσμε []
 θρωσων []
 κη παρεχ []
 αἰτῶων ἀλλ []
 ὀσικωσ κατὰ τῆ []
 νόμωσ και τ []
 τασ ἐν ὄρωσ []
 ἐποῖεσ μετρη []
 ἠ καιλιάσ βου []
 φημοσ, γυνο []
 δὲ και λέγεισ []
 β[]βαινωσ ὄν []
 νοηθη τῆ []
 διημαρτα []
 να διημαρτ []
 τῶ ἀναθρολ []
 ἰδῶν δὲ τολ []
 τωσ τῶ Σάλητῶ
 θρῶστων ἐ []
 θρωστων []
 γυναικῶσ []
 θρωσ ἀπὸ τῆ []
 τασ δὲ κεφα []
 ποαλα επ []

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δι-
 κου-
 συν-
 δι-
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Col. i

2 |, low trace 4 |, high crossbar touching v 7 |, end of stroke touching crossbar of π 9 |, trace just above mid-level 11 |, an oblique descending from left to right, with damaged surface on the right ... [an upright followed by the lower part of an oblique descending from left to right; the foot of an upright 12 |, the right-hand arc of a circle 14 |, oblique descending from left to right 15 |, small broken right-hand arc of a circle high in the line, with a trace on the line 16 |, high trace [], upright with blob at top; tail of ε joined a 20 |, shallow curve on the line touching a high trace [], lower part of upright or left-hand arc of a circle joined by a crossbar above mid-level to an upright with a right-facing hook at its foot [], on either side of a gap, the top of an upright and a high trace 25 |, trace above mid-level [], high trace 27 |, shallow diagonal touching upright at mid-height; η or λ; [], speak above mid-level, upper arc of a circle, followed by foot of upright 28 |, upright on edge 30 |, high and low traces 31 |, lower half of λ or χ 36 |, crossbar touching the two edges [], top and left side of round letter; top of upright; high trace; crossbar of v or w 41 |, beginning of horizontal just above mid-height, probably v [], right-hand half of μ or perhaps λ; upright touched above mid-level by a descending oblique 42 |, a descending oblique joining an upright on the lines, e.g. v λ or χ [], trace on the line, close to ω

Col. ii

1 | left-hand arc 4 |, a trace on the line closely followed by an oblique descending from left to right; a high trace [], left side of large round letter 22 |, high trace 23 |, foot of ascending oblique 24 |, trace on the line 29 |, upright, with left-facing hook at foot and blob at top; μ, as at 27, 34-5, rather than v 34 |, high crossbar 35 |, high trace 39 |, edge of left-hand arc

... Light sleep. Similar evacuations. Urinated copiously, sediment thick like meal, white, and again excreta cold. On the eleventh day, perished. From the beginning right to the end his breathing was rare and deep. Continual throbbing of the hypochondrium. Age about twenty.

Asclepiades, as I said, described the condition of the disease and the cause in each part, (insofar as these can be inferred from the) accompanying (symptoms). But to us, whose purpose is merely to find a treatment; for the act reasonably causes discontent. For as far as the manifest facts are concerned, it was certainly possible (for someone) to get an unclear account of the disease. However, he concentrated (too much?) on paroxysms and intervals and on those things 'by which' we shall not be able to measure out each of the things that are prescribed. But in these things said by Hippocrates it was not possible to find anything so easily, but, as though someone wanted to run through the most serious (symptoms) and those which killed the man (i.e. Silenus) rather than wanted to describe clearly the matters concerning the disease, there appear(?) to be ... And what is more, the practice of (letting out) what happened to Silenus, but claiming, as if he were making daily visits to him to carry out the treatment, that he knew nothing of what resulted, creates a certain shamefacedness and difficulty for the account ... besides the ... necessity ... are interested in medicine ... be connected to ...

'Silenus lived on the flat area near Euclid's place. After fatigue, drinking, and ill-timed exercise, fever took hold of him. He began to feel pain also in the loins, and there was heaviness of the head and tension of the neck. From his bowels on the first day there passed bilious, unmixt, frothy, dark-colored, and copious stools. Urine with black sediment. Thirsty, tongue dry. At night no sleep.

... take note of (?) ... strong/through ... person(s) ... offered ... causes ... in moist ... was making ... flux of the bowels ... alleviation ... and evacuation ... therefore it happened that (?) ... mistaken ... was mistaken ... reference ... see ... to Silenus ... persons ... exercise ... sweat from the ... head ... much ...

Col. i

1 8 Lemma (ii 688.4 8 L. ~ i 204-15 19 Kw).

1 AV Gall. have δ' αὐτῆ ἀνῶ. Contrast ii 10-11, where δ' is included in the same phrase: ἢ[πὸ δ' ἐκ]αίτης. At i 5, 5231 has a δ' not given by the other witnesses. Cf. 5222 2 (ἀνο δε κοιλί[α]ς, with a δ' not present in the other witnesses), 3 (δ' 5222 AV, omitted by Gall.).

2 After ἄθρονον, AV and Galen in his lemma and in two other places (Anarsarion-Imet, *Timonion ἐπι Corpus Hippocraticum* ii.1; cf. I. Garofalo, A. Lami, *Galenus 7* (2003) 23-8) have ἐπίστατον: κενόων (variantis: ἰπὸ παχέϊ V; κενόωντων, κενόωντων, κενόωντων Galen). It is omitted here, no doubt due to *σαυ* du même as *αὐτῆ*, ἰσοκρεταίε. The other witnesses have ὁσέκρονα. The fact that in the next line the papyrus has ἀλωεῖ, which should agree, suggests that this is merely a copyist's error.

3-4 καὶ πάλιν [ἀδρα φυχρό]. The other witnesses have ἀδρα πάλιν φυχρό. For the supplement, cf. *Epid. III* case 12 (ii 665 L. = 1233.25-6 Kw) καὶ πάλιν ἀδρα φυχρό.

5 δέ not in AV or Gall. Cf. 1 n.

9-13 The observation that Asclepiades described the cause of the disease recalls the complaints of other medical writers about the preoccupations of Asclepiades and his followers. For example, Dioscorides protests that certain Asclepiadists wanted too much time explaining the medicinal properties of plants in terms of Asclepiades' particular theory of matter; praef. 2 (i 2.3-5 W). ἢ δὲ ἄγε αἰτίαι κενόωντος ἐστὶν ἄδρα διαφορῆς ἑσπυτον αἰτίων (sc. τῶν φαρμάκων) ἀνοκρεταίε. Likewise Galen criticizes the Asclepiadean Sextus Niger, singled out by Dioscorides too, for indulging in τῶν κατὰ δεξιὰς ἀνοκρεταίῶν in his otherwise admirable work on *materia medica* (Sextus Niger fr. 4 Wellmann (iii 147) ap. Gal. *SMT* 6 proem. (xi 794.16 K)).

9 κενόων[των], ἀνοκρεταίε, 'cure', would be too short, and would not contrast with *θεραπειῆ* [(av 13-14) as the context requires. Asclepiades himself may have used the term *κατακρεταίε*; cf. *Cass. Proth.* 74.5-6 Garzya (p. 6) = 74 Ideler (I 165.10-12), influenced by Asclepiades, ἡ γὰρ τῶν καθαρῶν κατὰκρεταίε καὶ ἡ πείσε ἐνεταίε ἔστιν περὶ τὸν στόμαχον καὶ τὴν κοιλίαν. Cf. also pr.-Gall. *Dif. Med.* 464 (six 459.4 K).

12 ὡς ἔθρον. The previous discussion referred to here may well have been in reference to the first case history, that of Phyllax, to which Asclepiades presumably had a similar approach.

15-16 ὁσέκρονα εἰσέκρονα πηλ[ί]χρη τὸ πρῶτον[ισ]. 'I should take the reference to be to the matter at hand, rather than to an "act" of Asclepiades: "the matter reasonably causes difficulty". Then ἐνί would be temporal, cf. e.g. Dem. 21.74 for the contrast between the actual events and a report (24-5 below)' (WBH).

18 τῶν ὁ τιε[ι].

19-24 The subject of *παροξυλωθέντων* at 21 must still be Asclepiades, who is portrayed here as concentrating (perhaps excessively; see 21 n.) on the paroxysms and the intervals between them in working out what treatment to offer. Cf. Cels. 3.4.15 (CML 1 107.24-6), a passage likely to be based on Asclepiades' writings, criticizing the Hippocratic theory of days: *quod dicitur non paroxysmum dies debent, sed quae accedunt interius et ei his criticizing the Hippocratic theory of days; Asclepiades is cited by name at 3.4.12 (CML 1 107.3); Cels. *Aer. Cit. Pat.* 1.14.108 (CML VL1 82.14) also attests to Asclepiades' rejection of the notion of critical days. Galen is concerned with the periodicity of the paroxysms in his comments on Silenus' case, observing that the paroxysms occurred more on the odd-numbered days (xviii 262.11-12 K. = CMG VI.10 131.30-31), ὅπως γὰρ τῶν παροξυσμῶν ἐν ταῖς περὶκαίε μᾶλλον, but he places this in the context of his theory of critical days.) Following after the dates at 19-20, ἡ[κε]ί[νος] is naturally read as still governed by *παροξυλωθέντων*, but this makes little sense of what follows. I suggest that the relative pronoun αἰς dropped out by haplography after ἡ[κε]ί[νος]. ('I should understand "till, it (sc. the disease) followed certain (18 n.) paroxysms and intervals, and by them we shall be able to measure each of the things being applied"' (WBH).)*

21 ... [], ἄνω[] would suit the context well.
22-23 ἑσπυτον τῶν προσκολλημένων. The Hippocratic source text records almost nothing about the treatment that Silenus received. Asclepiades, by contrast, in his commentary clearly set out his own recommended treatment for the disease (cf. esp. i 34-6); the author's criticism of his approach at i 9-16 is that he included much superfluous material besides the treatment.

25-6 ρ[] | . . . ε[][δ[] is likely. WBH proposes ρ[][ε[]], "it would not be possible".

26 7 ε[][ε[] | ε[][ε[] supplied by WBH.

30-31 καθα[] supplied by WBH.

31-2 'I should punctuate before τὸ κατὰ τὴν νόσον and supply ἐντὸς] at the start of 32, "the matters connected with the disease appear to be insignificant", δηγήσειαθ[] καθα[] (30-31), "describe clearly", has the same object as ἐπιδρα[] (27), "treat summarily" (WBH).

32-40 'I take the point to be that Hippocrates merely reports the symptoms and behaves shamefacedly as though he knew nothing of the results (58) of his daily ἐπιμείλεια' (WBH).

34 τὸ Cα[]ηρ. The scribe will have written Cεα-, as at ii 37.

39-40 [] and τ[] supplied by WBH.

Col. II

1-2 Perhaps ἀρθρο[]ων, referring to Silenus, as at i 29-30 (cf. ii 20-21, 38-9).

4-16 Lemna (ii 684.11-686.1 L. = i 203.11-18 Kw).

4 Cα[]νός (restored). As at ii 37, Cεα- will have been written (cf. i 34).

7 πόντων κα[] with A and Gall; V has δὸ τῶν.

9 πορεύει AV (Kühlewein xvii) and Gall. Kühlewein prints the contracted form.

9 πορεύει: πορεύει AV (Kühlewein xvii) and Gall. Kühlewein prints the contracted form. καὶ δ[]εφόν: so V Gall. (καὶ δ[]εφόν M); A has καὶ δ[]εφόν. Cf. also Galen's comment that Hippocrates εἶφη πορεύει αὐτῶν δ[]εφόν (sviiA 264.1 K. = CMG V.10.2 131.20). Littré deleted καὶ, while Kühlewein conjectured κατ' δ[]εφόν, but emendation is unnecessary.

13 εἶφρα μέλαινα (restored): εἶφρα μέλαινα μέλαινα, given by AV Gall., will not fit. For the assumed *zauu du méla zu méla*, cf. i 2.

21 α[]μ[]α[]: presumably ἀμ[]α corrected to ἀλλ[]α.

28 η κοιλίας βίσι, E.g. ἡ κοιλίας βίσι, referring to the evacuations suffered by Silenus on the first day (10-13).

36-7 E.g. τῶν εὐμεβδ[]των τῶ Cα[]ηρ. cf. i 33-4. Otherwise [] τῶν with -θρ[]ασιων (8).

37-8 Perhaps παρακολούθ[]ησεν τῶν μετὰ τὴν νόσον with reference to the symptoms accompanying Silenus' disease: cf. i 11-12.

40-42 These lines appear to be concerned with Silenus' ill-timed exercise, which was one of the factors presented as leading up to his initial fever (7-8). Cf. also day six of his illness (ii 686.9-10 L. = i 204.4 Kw): εἶφρα, περὶ κεφαλῆς εὐμεβδ[]των.

D. LEITH

5232. ON HAEMORRHOIDS

22 3B.19/G(4-5)c

47 × 27 cm

Second/third century

Plate III

Parts of two columns with intercolumnium, written against the fibres on the back of a documentary text running in the same direction, of which only line ends survive. Col. I of the medical text gives line ends, and col. II is preserved to a width of about 8 letters. The upper margin of each column is partially preserved, measuring 1.6 cm at its deepest. The lower margin of the second extends to a depth of about 2 cm. Col. II has 51 lines, and col. I will have had 52. The intercolumnium is 0.3-0.8 cm wide. Col. II is preserved to a width of 2.8 cm at its widest; the original column width will have been approximately 9 cm (c. 2.6-8 letters). The

column height is 23.5 cm.

The text is written in a small informal hand, leaning to the right, with some ligatures (e.g. αι, ου, ει). η is h-shaped. μ is rounded, with a deep belly. ξ has a flat top and bottom with a central arc touching the base. ω is small and angular, with a flat base. Cf. the first hand of V 842 (GLH 17b), assigned to the second/third century, and VII 1019 + XLI 2948 (GMAW² 66), also assigned to the second/third century.

The text is divided into sections, each introduced by an indented heading with forked paraphrase above and paraphrase below (ii 6-7, 31): cf. the contemporary papyri PSI III 252 (MP³ 2364, a medical fragment of unknown provenance) and XLI 3007. A quotation at ii 17-20 is marked by marginal *diplai*, together with paraphrase under the first and last lines and a high point at the end: cf. e.g. P. Harr. I 1 ii 42-5, LIII 3699 fr. (d) ii, and the Berlin *Theaetetus* commentary (MP³ 1393), in which the lemmata are comparably signalled. There is a correction at ii 4, and a downward-pointing *ancora* (?) in the margin at the level of ii 37-8, indicating that an omitted passage was added in the lower margin: cf. 5220 fr. 2.9; McNamee, *Stigla and Select Marginalia* 13. There is no indication that either of these corrections was carried out by a different hand.

Midline dot is used as punctuation at ii 20 and 23. Initial ι and υ are marked with diacresis (ii 18, 19, 24, 26, 33, 46). A supralinear bar can replace υ at line end (i 21, 25, 26; contrast 28, 24). γ at i 22 may be a numeral. Horizontal strokes and tails are frequently extended at line end.

The intelligible part of the text deals with haemorrhoids. Surgery for the condition is introduced at ii 31. The subject of ii 1-5 is unclear, but haemorrhoids are probably already the main topic: cf. i 43 μσορ. The central section (ii 6-30) may deal with the question whether all haemorrhoids should be removed. The passage quoted at ii 17-20 is the Hippocratic Aph. 6.12 (iv 566.7-8 L. = 451.2-3 Magdelaine), which states in the usual text that 'when a patient has been cured of chronic haemorrhoids, unless one be kept, there is a danger lest dropsy or consumption supervene' (tr. W. H. S. Jones, Loeb vol. iv p. 183). Hippocrates is named at ii 24.

In his commentary on the aphorism (xviiiA 22 K.), Galen gives a justification of the usual form of the aphorism in line with his own pathology; cf. e.g. *Orib. Syn.* 9.40.1-3 (CMG VI.3 300.29-301.4), *Steph. In Aph.* (CMG XL.3.3 214.12-216.7); *Paul. Aeg.* 6.79 (CMG IX.2 123.20-124.11); *Paul. Nic.* 108.1-29 Ieraci Bio (pp. 199-200). *Aët.* 14.5 (in a section provisionally edited by A. M. Ieraci Bio, 'Tracce della fortuna di terapie ipocratiche in età bizantina', in I. Garofalo et al. (edd.), *Aspetti della terapia nel Corpus Hippocraticum* (1995) 455-65 at 462), on the other hand, insists that Hippocrates meant that all haemorrhoids must be removed. He states that ἦν μὴ φυλαγθῆ should be read in Aph. 6.12 rather than ἦν μὴ μετὰ φυλαγθῆ, and that the phrase refers to the need to prescribe the appropriate regimen for the patient (i.e. 'unless (the patient) is maintained (by diet)'). There is no indication that the papyrus had Aëtius' version of the aphorism (cf. ii 18, 22-3 nn.). The philological nature of Aëtius' remark may suggest that this disagreement was discussed in the tradition of commentaries on Aph., which goes back at least to the Herophillean Bacchius of Tanagra in the mid-third century BC (*Gall. Hipp. Aph.* 7.70 (xviiiA 186.14-187.4 K.) = *Ba.9* von Staden (p. 495)). Moreover, as Ieraci Bio 463 points out, in the Hippocratic treatise *De haemorrhoidibus* it is twice prescribed that

all haemorrhoids should be removed (by cautery, *Haem.* 2 (vi 436.20–21 L. = 147.1–2 Joly); by drugs, *Haem.* 7 (vi 442.19–20 L. = 150.3–4 Joly)). On the other hand, the Hippocratic *De dissecta acutorum (ipuarium)* 62 (ii 516.12 L. = 95.16 Joly) also warns that one haemorrhoid should be left untouched. Internal contradictions of this sort in the Hippocratic Corpus certainly fuelled debates among ancient interpreters, and such a controversy may lie behind this section of the text. There are perhaps indications that divergent opinions were set out: the reference to the view of 'the majority' at ii 8; *οὐ δέ* at ii 14; and the placing of the quotation in the middle of the passage, which may indicate the author's need for authoritative support for his own position. On the other hand, the fact that the author of this text focuses on the question does not suggest that he was aware of different exegetical traditions. The point may simply have been to draw attention to and endorse certain Hippocratic views about the treatment of haemorrhoids which were perhaps not generally followed by medical practitioners.

Other indirect witnesses to *Aph.* on papyrus are given at CPF I.2* 18 Hippocrates 22T–24T; BKT III 22–6 ii 10–12 (*Aph.* 1.1); P. Ant. III 124 fr. 1(β).8–10 (*Aph.* 1.16); and P. Ryl. III 530, a kind of commentary on *Aph.*, of which the preserved sections are concerned with parts of books 4 and 5. For the direct witnesses, see 5219.

There is no firm basis for an attribution, but for some resemblances to extant accounts of haemorrhoid surgery, see the commentary, esp. ii 32–7 nn. For surgical texts on papyrus, cf. esp. M.-H. Marganne, *La Chirurgie dans l'Égypte gréco-romaine d'après les papyrus littéraires grecs* (1998); also e.g. 5240.

Col. i	Col. ii		
]αι	δης ζήτηη[	δης ζήτηη[
]υ	πολυχρον[	πολυχρον[
]ουc	ραποτεδ[	ρα ποτε δε[
]α	[τα]εξεαυτω[	[τα] νο ε εξ αυτω[
5]να	5]μεκατα[	5]μεκατα[
]ραι	ειδεν[	ει δέν [
]με	τασαμ[	ταc αιμ[ορροιδας	
]ειc	τοιcπλει[	τοιc πλειcτοιc	εδο-
]α	ξεναναι[	ξεν αναμ[ειν	
10]αε	10 φυcισπαθ[	φύcιc παθ[
]ει	ωcπεραλλ[	ώcπερ άλλ[
]εp	πρωτηcγε[	πρώτηc γε[
]ε	καιηδιατω[	και ή δια τω[
]α	οιδελεξα[	οιδελεξα[
15]	15 αποτων[	από των[
]ειc	τολογων[	το λόγω τ[

	]ι	> μενωφη[	> μένω φη[ει	αίμορροιδας χρο-
	]εν	> νιουcτη[	> νιουc τη[	> νιουc τη[έντι, ην μη μία φυλαχθη, κίν-
	]ο	> δυνοcυδ[	> δυνοc υδ[	> δυνοc υδ[ρωσα επιγενεcθαι η φθι-
20	]μι	20 > κυτου[	> κυ. του[
	]αcε	τηρηθη[	τηρηθη[	τηρηθη[
	]α	πocτη[	πρόc τη[ν	
	]γη	κυτου[	κυ. του[
	]ων	ιπποκp[	ΐπποκp[τ	
25	]με	25 αριcτηδ[	άρictη δ[	ε-
	]ω	τινιδ[	ctην ιδ[
	]θειc	ciouc[	ciouc ε[
	]αι	αίμοpp[	αίμοpp[
	]κα	χθηcτ[	χθη cτ[ε[
	]ν	αίμοppo[	αίμοppo[
30	]θι	30 > χει[	> χειp[ουργία	
	]ι	πpouciο[	πpouciο[νομ	
	]υ	τεύτο[	τε ύπο[
	]ι	καικομ[	και κομ[ι[
	]ι	δετηνχε[	δε την χειp[ουργίαν	
35	]α	35 οπαcχων[	ό παcχων[
	]ι	δpouωc[	δpου ώc ε[
	]ι	τοταυ[	τοτε άγγ[
	]ι	εκτpεπ[	έκτpεπ[
40	]κραι	40 . . . τειδ[	. . . τειδ[
	]ι	. . . ναιε[	. . . ναι ε[
	]ειc	τιθεc[	τιθεc[
	]μοp	χι[	χι[
	]ι	χαιεξ[	χαι εξ[
45	]η	45 εκac[	έκαcτ[
	]ευ	τωcυ[	τωc υ[
		. αιπ[	. αιπ[
		. κ[	. κ[
		. . . τι[	. . . τα[
	50	. . . ρμ[	. . . ρμ[
		. . . κ[	. . . κ[

Col. i

- 1] edge of right-hand arc of a small circle 4] end of a stroke joining loop of a 9] end of a stroke joining loop of a 10] vertical stroke, slightly bowed, touching top of a 15] long horizontal at mid-line level, speck on edge below 17] long horizontal at mid-line level, speck on edge above 19] diagonal rising gently from left to right, with trace above on edge 20] diagonal rising steeply from left to right, curving to right at top, as of ν 22] diagonal rising steeply from left to right, curving to right at top of upright at a rounded letter, with upright on the right 26] r, right-hand arc of circle joined by top of upright at a rounded letter, with upright on the right 27] traces suggesting right-hand side of a surface stripped on left) joined from left near top 31] indistinct trace 37] oblique descending from left to right, abraded on the left, with further link on the edge 38] upper left-hand arc of a circle 39] diagonal rising from left to right, with long horizontal extending from foot apparently a round letter 42] stroke touching ϵ at mid-height 44] indeterminate traces followed by long descender curving to left

Col. ii

- 3] back of round letter (θ oc) 4, 2, 1, two uprights close together, joined at the top 5] foot of vertical 9] on the edge, a vertical descending below the line 10] an upright with an angular turn-up 15] vertical, with horizontal projecting from its foot, and small hook pointing to right at top 16] upright on the edge, hooked to left at foot; above, a short crossbar at letter-top level, extending to the edge 18] e.g. the lower left-hand corner of θ 21] specks 24] low blob 27] upright, high traces to right 29] upright 31] specks below the line, perhaps a descender 33] perhaps left-hand parts of θ oc 34] upright 37 mg. Further traces above and to the right of the *ancon* 38] upright, further traces to right at top 40] damaged traces 41] rubbed traces 42] left-hand side and cap of σ or τ 43] left-hand end of high cross-bar, trace on line 46 r, right-hand end of high cross-bar [foot of vertical 47, σ , e.g. end of upper branch of κ [trace on line 48] upright joined at foot; further speck on a single fibre to left 49] short high trace on edge with tall emerging, touching σ on left 51] low trace touching κ [low loop as of α , σ , etc., with further ink above

'... enquire (?) ... long-lasting ... and sometimes (?) ... from them ...

'Whether it is necessary ... haemorrhoids ...

'To most ... it seemed best to remove ... nature ... just as other (?) ... first ... and the ... by means of ... but the ... from the ... saying (?) ... says (...) "for one cured of chronic haemorrhoids, unless one (?) is saved (?), there is a danger that dropsy or consumption may supervene." This (?) ... preserved (?) ... to the ... Hippocrates ... best ... is ... haemorrhoid(s) (?) ... that ... haemorrhoid(s) (...)

'Surgery (...)

'Prepare in advance ... by ... and ... the surgery ... the patient ... as ... evert ... place ... each ...'

Col. i

- 43] $\mu\alpha\sigma\tau$: perhaps $\alpha\Gamma\mu\sigma\tau\eta\lambda\iota\sigma\tau$. (but $\alpha\Gamma\mu\sigma\tau\eta\lambda\iota\sigma\tau\alpha$ is also possible).

Col. ii

1 $\xi\eta\eta\eta\eta$. A form of $\xi\eta\eta\eta\eta$ or $\xi\eta\eta\eta\eta$? The problem posed in the heading at 6-7 could be an example of a $\xi\eta\eta\eta\eta$.

2 $\mu\alpha\lambda\lambda\alpha\gamma\mu\alpha\tau$. Perhaps of haemorrhoids; cf. $\chi\eta\mu\eta\lambda\lambda\eta\sigma\iota\sigma$ in the Hippocrates quotation (7-18).

3 $\mu\alpha\sigma\tau$ $\mu\alpha\sigma\tau$ $\delta\epsilon$ ξ . Perhaps the question is which approach is to be preferred in the treatment of haemorrhoids, and the preserved sequence belongs to a general statement on the various types of treatment available. Cf. *Gal. MM* 14.13 (x 989.11-14 K.) $\kappa\alpha\tau\alpha\ \tau\alpha\upsilon\tau\alpha\ \tau\alpha\ \kappa\lambda\eta\sigma\iota\sigma\tau\alpha\ \tau\eta\eta\ \delta\iota\alpha\lambda\epsilon\kappa\tau\eta\ \delta\delta\delta\eta\ \tau\eta\varsigma\ \lambda\acute{\alpha}\sigma\epsilon\omega\varsigma\ \dots\ \epsilon\upsilon\theta\epsilon\lambda\eta\sigma\tau\alpha\ \mu\alpha\tau\alpha$

$\mu\acute{\epsilon}\nu\ \eta\ \delta\iota\alpha\ \tau\eta\varsigma\ \chi\eta\mu\alpha\sigma\tau\eta\lambda\iota\sigma\tau\alpha\ \alpha\lambda\phi\alpha\upsilon\sigma\tau\epsilon\tau\alpha$, $\mu\alpha\sigma\tau\ \delta\epsilon\ \eta\ \delta\iota\alpha\ \tau\eta\varsigma\ \phi\alpha\sigma\mu\alpha\delta\iota\kappa\alpha\varsigma$; also 6-7, 13 nn. Then $\mu\alpha\sigma\tau$ may represent a comparative such as $\alpha\lambda\phi\alpha\upsilon\sigma\tau\eta\lambda\iota\sigma\tau\alpha$, perhaps in agreement with $\theta\epsilon\pi\alpha\tau\epsilon\iota\alpha$, and $\mu\acute{\epsilon}\nu$ will have preceded; $\xi\eta\ \alpha\delta\iota\upsilon\lambda\eta\sigma\tau$ may be part of a reference to the choice to be made from among the possibilities mentioned (WBH). 6-7 $\epsilon\iota\ \delta\epsilon\ \lambda\acute{\alpha}\omega$ | $\tau\acute{\alpha}\varsigma\ \alpha\Gamma\mu\sigma\tau\eta\lambda\iota\sigma\tau\alpha\varsigma$. $\epsilon\iota\ \delta\epsilon\ \lambda\acute{\alpha}\omega$ [$\xi\tau\epsilon\tau\eta\ \delta\iota\alpha\upsilon\sigma\tau\eta\ \mu\alpha\sigma\tau\alpha\varsigma$] | $\tau\acute{\alpha}\varsigma\ \alpha\Gamma\mu\sigma\tau\eta\lambda\iota\sigma\tau\alpha\varsigma$ (Whether it is necessary to remove all haemorrhoids) would be a suitable heading.

8-9 $\tau\acute{\alpha}\varsigma\ \mu\epsilon\lambda\epsilon\tau\epsilon\tau\alpha\varsigma\ \dots\ \delta\theta\eta\lambda\eta\sigma\tau\epsilon\tau\alpha\ \delta\iota\alpha\ \mu\epsilon\lambda\epsilon\tau\epsilon\tau\alpha\varsigma$. The sort of ending at 9, the citation of Hippocrates, and the quotation of *Aph.* 6.12 point to a reference to the majority of 'ancient' doctors, whether $\tau\acute{\alpha}\nu\ \mu\alpha\lambda\lambda\omega\tau\omega\ \text{or}\ \tau\acute{\alpha}\nu\ \delta\epsilon\lambda\epsilon\tau\alpha\ \text{or}\ \tau\acute{\alpha}\nu\ \delta\epsilon\lambda\epsilon\tau\alpha$. This majority view was no doubt that one haemorrhoid should be left, as stated in the aphorism that the author quotes and at *Aet.* (*Sp.*) 62 (ii 916.12 L. = 916.16 Joly). The opposing view, that all haemorrhoids should be removed, is not found in 'ancient' medical treatises except in *Haem.* (cf. introd.), a tract which certainly did not hold the authority of *Aph.* A possible reconstruction: $\tau\acute{\alpha}\varsigma\ \mu\epsilon\lambda\epsilon\tau\epsilon\tau\alpha\varsigma\ \mu\alpha\sigma\tau\ \delta\theta\eta\lambda\eta\sigma\tau\epsilon\tau\alpha\ \delta\theta\eta\lambda\eta\sigma\tau\epsilon\tau\alpha\ \mu\alpha\sigma\tau\ \mu\acute{\alpha}\lambda\omega\ \text{or}\ \mu\alpha\sigma\tau\ \mu\acute{\alpha}\lambda\omega$ (The majority of the ancients thought they should remove all but one'). WBH prefers a more general reference, with e.g. $\tau\acute{\alpha}\nu\ \lambda\epsilon\tau\alpha\tau\omega\ \text{rather than}\ \tau\acute{\alpha}\nu\ \mu\alpha\lambda\lambda\omega\ \text{or}\ \tau\acute{\alpha}\nu\ \delta\epsilon\lambda\epsilon\tau\alpha\ \text{or}\ \tau\acute{\alpha}\nu\ \delta\theta\epsilon\mu\epsilon\tau\alpha$.

10 $\theta\acute{\alpha}\nu\epsilon\tau\alpha$. In relation to the view that one haemorrhoid must be left, there may be a reference here to the *vis medicatrix naturae*, in particular her expulsion of unhealthiness through the haemorrhoid, as described, e.g., in *Gal. Hipp. Aph.* 6.12 (viiiA 22 K.); see introd. Theophilus' commentary on this aphorism refers to the action of Nature in such a way: $\eta\ \theta\acute{\alpha}\nu\epsilon\tau\alpha\ \delta\epsilon\ \lambda\acute{\alpha}\omega\ \tau\eta\ \mu\alpha\sigma\tau\ \delta\epsilon\lambda\epsilon\tau\alpha\ \text{from the liver}$ $\delta\iota\alpha\ \mu\alpha\lambda\lambda\omega\tau\epsilon\tau\alpha\ \tau\omega\ \mu\epsilon\tau\alpha\tau\tau\epsilon$ (ii 492.6-7 Diets). Line 9 could accommodate $\eta\ \gamma\eta\lambda\eta$ after the supplement given in 8-9 =

$\mu\alpha\sigma\tau$ [ξ $\mu\alpha\theta\lambda\eta\sigma\tau$] WBH, comparing for the ω e.g. 13 below.

12 $\mu\alpha\sigma\tau\eta\tau\eta\ \gamma\acute{\alpha}\lambda$. 'E.g. $\delta\alpha\tau\ \tau\eta\varsigma$ '] $\mu\alpha\sigma\tau\eta\tau\eta\ \gamma\acute{\alpha}\lambda$ (WBH).

13 $\eta\ \delta\iota\alpha\ \tau\omega\ \tau\omega$. 'Perhaps e.g. $\eta\ \delta\iota\alpha\ \tau\omega\ \phi\alpha\sigma\mu\alpha\delta\iota\kappa\alpha\ \theta\epsilon\pi\alpha\tau\epsilon\iota\alpha$ cf. 3 n. *Aët.* 145 (Laur. plut. 75.7 L 651 ch. 6, col. 840 Cornarius (1549)) considers surgery the $\acute{\alpha}\delta\epsilon\lambda\lambda\alpha\sigma\tau\epsilon\tau\alpha\ \dots\ \kappa\alpha\iota\ \sigma\upsilon\lambda\lambda\eta\sigma\tau\eta\sigma\tau\alpha\ \theta\epsilon\pi\alpha\tau\epsilon\iota\alpha\ \tau\acute{\alpha}\nu\ \alpha\Gamma\mu\sigma\tau\eta\lambda\iota\sigma\tau\alpha\ \text{or}\ \tau\acute{\alpha}\nu\ \delta\epsilon\lambda\epsilon\tau\alpha$, but notes that others, due to cowardice, prefer some or all of them to be removed $\delta\iota\alpha\ \phi\alpha\sigma\mu\alpha\delta\iota\kappa\alpha\ \text{or}\ \tau\acute{\alpha}\nu\ \delta\epsilon\lambda\epsilon\tau\alpha$ may introduce a new party to the debate: supply e.g. $\delta\epsilon\ \delta\epsilon\lambda\epsilon\tau\alpha\ \text{or}\ \delta\iota\alpha\ \mu\epsilon\lambda\epsilon\tau\alpha\ \text{or}\ \tau\acute{\alpha}\nu\ \delta\epsilon\lambda\epsilon\tau\alpha$.

16-17 $\tau\omega\ \lambda\acute{\alpha}\omega\ \mu\alpha\sigma\tau$ [... $\tau\eta\ \mu\alpha\sigma\tau\ \phi\eta\lambda\epsilon$. These lines may refer to the source of the subsequent quotation.

]] $\lambda\acute{\alpha}\omega\ \mu\alpha\sigma\tau$ may be $\tau\eta\ \mu\alpha\sigma\tau\ \mu\alpha\sigma\tau$, i.e. the topic proposed, referring to the problem set in the heading above at 6-7. 'Perhaps e.g. $\sigma\upsilon\lambda\lambda\eta\sigma\tau\eta\sigma\tau\alpha$ with reference to the quotation in lines 17-20, and then e.g. $\epsilon\lambda\eta\theta\eta\sigma\tau\eta\sigma\tau\alpha$ (by Hippocrates)', $\phi\eta\lambda\epsilon$ $\gamma\acute{\alpha}\lambda$. A stop is used elsewhere (no, 33), but may not have been needed in a case like this' (WBH).

17-20 The marginal $\delta\iota\alpha\lambda\iota\mu\alpha$ and the paragraphus indicate that the quotation began at 17. It was apparently introduced by $\phi\eta\lambda\epsilon$ (ϵ). The nominative $\kappa\alpha\Gamma\delta\theta\omega\sigma\alpha\varsigma$ at 18-19 confirms that the quotation is not in *ontio obliqua*. *Hipp. Aph.* 6.12 is printed as follows in Magdelaine's edition (451.3-4 = iv 566.7-8 L.): $\alpha\Gamma\mu\sigma\tau\eta\lambda\iota\sigma\tau\alpha\ \text{or}\ \delta\epsilon\lambda\epsilon\tau\alpha$, $\tau\eta\ \mu\acute{\alpha}\tau\eta\ \mu\acute{\alpha}\lambda\alpha\ \phi\eta\lambda\alpha\gamma\theta\eta$, $\kappa\alpha\tau\omega\delta\upsilon\sigma\tau\eta\sigma\tau\alpha\ \delta\iota\alpha\ \mu\epsilon\lambda\epsilon\tau\epsilon\tau\alpha\ \eta\ \theta\acute{\alpha}\nu\epsilon\tau\alpha$, $\alpha\upsilon\tau\eta\ \eta\theta\eta\ \chi\eta\sigma$ (the text of C¹M¹P Gal(MP) Steph Theol(UV) and the first quotation in *Aët.* 14.5; Littré's $\tau\eta\ \mu\acute{\alpha}\tau\eta\ \mu\acute{\alpha}\lambda\alpha$ is taken from L, a descendant of M. WBH notes that the second quotation in *Aëtius* agrees with the papyrus in respect of the word-order in $\theta\eta\lambda\eta\sigma\tau\eta\sigma\tau\alpha\ \chi\eta\sigma\ \eta\theta\eta$, according to the manuscripts Laur. plut. 75.2 (f. 217r), 75.7 (f. 651), and 75.21 (f. 167v); Iseraci Bio's provisional edition (cf. introd.), based on other manuscripts, has $\alpha\Gamma\mu\sigma\tau\eta\lambda\iota\sigma\tau\alpha\ \text{or}\ \delta\epsilon\lambda\epsilon\tau\alpha$ (ϵ); Iseraci Bio's provisional edition (cf. introd.), based on other manuscripts, has $\alpha\Gamma\mu\sigma\tau\eta\lambda\iota\sigma\tau\alpha\ \text{or}\ \delta\theta\epsilon\mu\epsilon\tau\alpha$ introducing the quotation' (WBH).

17-18 $\chi\eta\mu\eta\lambda\lambda\eta\sigma\iota\sigma$ for $\chi\eta\mu\eta\lambda\lambda\eta$. WBH notes that the same form is transmitted in both quotations in *Aëtius* 14.5 in Laur. plut. 75.7 (ff. 649, 651), 75.23 (f. 167v), and in other manuscripts at least in the first, according to Iseraci Bio's reports, and also in Paul. Nic. 108.27 Iseraci Bio (p. 200). For feminine $\chi\eta\mu\eta\lambda\lambda\eta$ in the Hippocratic Corpus, cf. the *Index Hippocraticus* s.v.

18 $\tau\eta\ \mu\acute{\alpha}\tau\eta\ \mu\acute{\alpha}\lambda\alpha\ \phi\eta\lambda\alpha\gamma\theta\eta$ is restored, but it is not certain that the papyrus had this form of the text. $\mu\acute{\alpha}\tau\eta$ is the reading of C¹M¹P Gal(MP) Steph Theol(UV); the reading $\mu\acute{\alpha}\tau\eta$ (PE) has no authority. But the manuscripts of Paul. Nic. 108.27 Iseraci Bio (p. 200) omit $\mu\acute{\alpha}\tau\eta$, and $\mu\acute{\alpha}\lambda\alpha$ was omitted in the version preferred by *Aët.* 14.5. 'To judge by the length of the following line, where the supplement is fairly unconvincing, either $\mu\acute{\alpha}\tau\eta$ or $\mu\acute{\alpha}\lambda\alpha$ may have been omitted on the line, but any such omission may have arisen through scribal error alone, and may

have been made good: the evidence of the spacing alone is inconclusive' (WBH). Gal(M) and Paul. Nic. have διαφυλαχθή for φύλαχθή, but there is not likely to be room here for the preverb.

20 τοῖτον or τοῖτον, referring to the aphorism or its content?

31 τήρηθῃ | may correspond to φύλαχθῃ in the quotation. Perhaps the word belongs to a general phrase or explanation of the aphorism, or a defence of a particular interpretation.

22-3 πρὸς τὴν [ευ. Perhaps a reference to the purpose of leaving a single haemorrhoid: e.g. πρὸς τῆν τοῦ περιτοῦ αἵματος κἀθάρσιν (cf. Paul. Aeg. 6.79 (CMG IX.2.123.29) διὰ τὴν τοῦ περιτοῦ αἵματος ἐξουχέτως) or πρὸς τῆν τῆς κλύσεως γούλη ἐκκρίσιν (for the secretion of melancholic blood through haemorrhoids, cf. Gal. H₂pp. Aph. 6.2.2 (xviiA 12 K)). WBH notes that πρὸς τῆν περιτοῦ αἵματος ἐκκρίσιν without the second article would be a better fit for the space as suggested by line 19. The sequence preserved at 20 exactly matches that preserved at 20, including the midline dot.

29 χθὲ στι | λθῆ may suggest φθῆλ[θῆ, and thus a repress of the aphorism quoted above, perhaps in some sort of concluding statement. *σθι*, however, may point to e.g. εἰλ[θῆ/σθῆ or εἰδ[θῆ/σθῆ.

31 χειρουργία. Probably χειρουργία (τὴν) αἰμορροΐαν, though it is also possible that χειρουργία alone was written: cf. P. Strasb. gr. inv. 849.15 (ed. C. Magdelaine, in L. Andorlini (ed.), *Texti medici in vitro* (2004) 63-77; MP³ 3243.01), where there is space only for χειρουργία, with P. Ross. Geogr. I.20.84-5 χειρ[οργία τοῦ] ε[ρ]τα[θ]ε[ρ]μ[α]το[υ].

Haemorrhoid surgery is described by Paul. Aeg. 6.79 (CMG IX.2.123.20-124.1), Aët. 14.5 (e.g. Laut. plin. 75.7 f. 65r ch. 6, col. 840 Cornarius (1749)), and Cels. 7.30.3 (CML I 359.6-360.4). Little can be made of the present account except at the start, but the notes indicate some possibilities.

32 προκοίμωσι. WBH notes that Aëtius' account begins in the same way, προκοίμωσι τούτων χρὴ τὸ πάχος διὰ τὴν ὑγιαινούσαν καὶ ἰσορροπία, κατὰ τὸ πλεονεχθεὶ δὲ καὶ κλύσεως ἰσότητας, ἅμα μὲν κοιλῆς χερσὶ τοῦ σκευθλοῦ, ἅμα δὲ κτλ.

34 κομῆ. 'Perhaps e.g. κομῆθῃ χερσὶ τοῦ σκευθλοῦ ε. Aët. (23 n.)' (WBH). 34-7] δὲ τὴν χειρουργίαν | ὁ πάχος | ἴθρον ὡς ε. We expect a description of the appropriate position (χρῆσι) for the operation, in particular after the reference to advance arrangements (21). *Orth. Coll. Med.* 44.12 (CMG VI.2.1.124.19-20), on the treatment of rectal abscesses, corresponds closely: πρὸς δὲ τῆν χειρουργίαν ὄντως χρῆσαι· ἔλθειν ὁ πάχος ἐπὶ παρεθρον ἴθρον πρὸς ἀσθῆ λαμαρῆ. With two minor changes in word order, the text of the papyrus can be restored thus, giving lines of approximately the same length as 19 above.

πρὸς
δὲ τὴν χειρουργίαν χρηματικῶς
ὁ πάχος ἴθρον ἐπὶ δέθρον πορ-
θρον ὡς ε

δρον in particular is a distinctive sequence. Paul. Aeg. 6.79 uses similar language in his chapter on the surgical treatment of haemorrhoids, recommending that the patient be placed in a supine position in direct sunlight, *χρηματικῶς ἀπὸ ἡπιου τὸν αἵματος πρὸς ἀσθῆ λαμαρῆ* (CMG IX.2.123.25-6).

The textual overlap and congruence in subject matter may suggest that there is a link between the two texts. Orribasius' excerpt is derived from the work *On Surgery* (*Chirurgia*) of the surgeon Heliodorus (late 1 AD), and apparently from its third book: Heliodorus is the last author named as a source by Orribasius (cf. 1 AD), and heading to 44.6 (CMG VI.2.1.120.29-30), 'Ἐκ τῶν Ἡλιοδώρου. Περὶ τῶν ἐκ κατακλῆθες ἀποστήματων', and the heading to this chapter, as well as the anonymous chapters 44.7 and 8, state that they are drawn from book 3 of his *Chirurgia*. The scholion to 44.1-4 (CMG VI.2.1.124.33), citing a parallel from book 11 of Heliodorus' *Chirurgia* for his use of the term *κατίδα*, shows that he is still the source, and the congruence of this chapter's subject matter with that of the whole section, 'ἰσίδης ἀποστήματ', suggests that it likewise came from book 3. There is no surviving account of the surgery of haemorrhoids in Orribasius. Orribasius seems to have been remarkably faithful to the words of his sources (cf. R. de Lucia, 'Dontographical Hints in Orribasius' *Collections medicae*', in P. J. van der Eijk (ed.), *Ancient Histories of Medicine* (1999) 473-89, esp. 478-83; M.-H. Marganne,

'Un fragment de médecine Hérodote: P. Téb. II 272', in *Pap. Coang. XVI* (1981) 73-8). Perhaps Heliodorus' surgical procedure for treating rectal abscesses was similar to his procedure for treating haemorrhoids, and he used the same language in each case to describe the position in which the patient should be placed (as 37 might even be supplemented, ὡς εἰπὶ τὸν δὲ βρα, ἀποστήματων (too long)), or ὡς ἴθρον or ἐλεῖν (broad). Thus the close verbal parallel between 5232 and Heliodorus' treatment of rectal abscesses might suggest that one author was using the other, or that 5232 was also written by Heliodorus. (It may be risky to build on this resemblance. The position to be adopted for haemorrhoid surgery is likely to have been settled at an early stage, and the language is not very distinctive: cf. e.g. P. Lond. Lit. 166 ii 17-20 παρήγγελαι | [γ]άρ ὄντων μὲν χρηματικῶς τὸν | [τ]ῆς ἀκούσας κατὰ τινος ὁμαλοῦ κατ[ε]ρακενεύματος ὡσερ βῆθρον (Marganne, *Chirurgia* 37), iii 8-10 (ibid.), iv 6-9 χρηματικῶς | γὰρ τὸν ἰσχύοντα κούσονται | ἐπὶ πύκτε διαφορά | [σ]πυρην καὶ [ἄ] βῆθρον [γ] καὶ [α]τ[ε] [δὲ] μ[α]ίοντες (ibid. 38); P. Ryd. III 529.66-81 (ibid. 172-173)' (WBH).

37 *mg*. The traces above and to the right of the *α* above are puzzling. *κέρου* was not written.

38 εὐχέτραν (for ἄνευκτραν ε. 5240 fr. 1.1, *ε* for the spelling) read and supplied by WBH: the first *y* resembles that at 12, the second that at 16. The use of the hook in haemorrhoid surgery is described by Aëtius and Celsus (7.30.3B (CML I 359.14-17)).

39 ἐστρέψε (e.g. *ἐστρέψε* (εἶναι) probably refers to the action of evertting the anus in order to gain better access to the haemorrhoids: cf. *ἐστρέψε* in Paul. Aeg. (CMG IX.2.123.24) and Aët.).

41 . . . ηαι ε. 'Perhaps δι[η]θάσι, εἴτε (or εἴτετα): cf. Aët. *χρὴ δέσטרην τῶν αἰμορροΐων ἀπὸ πύκτε τῆ ἀνεύκτρα, ἕπειτα περιχάρσεναι τὴν βῆν, εἴτα περιερέφονται τῷ ἀνεύκτρῳ δίδονται τῷ ἀνεύκτρῳ κρατεῖν τῷ ὑψηλῆτ'* (WBH).

42 τθε. | . . . ἴσρ[ε]θ[ε]σ[θ]αι, εἰπ[ε]θ[ε]σ[θ]αι? Cf. Aët. μετὰ δὲ τὴν τούτων ἐκοτῆρη, ἔχωμαι ἐτηρὸν προστιθεμε καὶ στυραγιὰ διαθεθετήρη λόγῳ ἐπιθήτεσε ξεῖον ἀρχῆν τοῦ λίου καταλείπομεν' (WBH).

44 χρὴ εἰ. | εἴπ[ε]θ[ε]σ[θ]αι ε. 42 n. (WBH).

45 ἰσκέτ'. Each of the haemorrhoids' (WBH).

30 . . . ηαι. | φομῆμ[ε]σ' (WBH).

D. LEITH

5233-4. ON ACUTE DISEASES

These two papyri preserve fragments of an unknown medical treatise on the subject of acute diseases, with substantial textual overlaps between 5233 and ii and 5234 fr. 1. There are minor divergences, not affecting the sense. δὲ is present at 5233 ii 8, but omitted at 5234 fr. 1 i 16, and γενο[μένη] (?) present at 5234 fr. 1 i 1, but omitted at 5233 i 20. There seems also to be some inconsistency between the two in the use of the singular and plural of first-person verbs. 5233 i 6 preserves a plural (εἰρήκαμεν). 5234 fr. 1 i 2 has a singular (δεθῆλῶκα), but to judge by the space available, 5233 i 21-2 had the plural at this point ([Ἰ]εθῆλῶ[κ]αμεν). There is a natural sense break here, but the possibility that the lacuna contained the singular form accompanied by blank space can be ruled out, as no comparable spaces of this length are used in the remains of this copy (cf. i 2) and the plural form is used elsewhere. 5234 fr. 1 i 2 has a singular form accompanied by blank space can be ruled out, as no comparable spaces of this length are used in the remains of this copy (cf. i 2) and the plural form is used elsewhere. 5234 fr. 1 i 2 has a singular form accompanied by blank space can be ruled out, as no comparable spaces of this length are used in the remains of this copy (cf. i 2) and the plural form is used elsewhere. 5234 fr. 1 i 2 has a singular form accompanied by blank space can be ruled out, as no comparable spaces of this length are used in the remains of this copy (cf. i 2) and the plural form is used elsewhere. 5234 fr. 1 i 2 has a singular form accompanied by blank space can be ruled out, as no comparable spaces of this length are used in the remains of this copy (cf. i 2) and the plural form is used elsewhere.

5233 is the more instructive in respect of the form, structure, and theoretical background of the work. The best preserved section begins at i 22, dealing with the treatment of lethargy,

and continues beyond the point at which intelligible text ends in both papyri. Preceding this therapeutic section is a passage that refers to the pulse (5233 i 16). This section probably dealt with the signs of lethargy, in accordance with the sequence of topics found in surviving treatises on acute diseases (cf. e.g. Anonymus Parisinus; Cael. Aur. *Cel. Pass.*). The text of 5233 fr. 1 i (11–13) comes from the top of the same column, and similarly preserves part of a therapeutic section. This clearly belongs to a discussion of the disease that preceded in the treatise. In view of the consistent ordering in comparable treatises on or lists of acute diseases in the Roman period, we would expect that this disease was phrenitis, an expectation confirmed by the reference to a previous discussion of the therapy for phrenitics at ii 1 (= 5234 fr. 1 i 10–11), and by the reference to παρακομή (i 3), a term that denotes a delusional episode particularly familiar as a symptom of phrenitis (cf. 5233 i 3 n.). This therapeutic material seems to continue beyond the surviving portions of 5233 fr. 1 i, so that the transition from the chapter on phrenitis to that on lethargy must have occurred in the lost portion of column i between fr. 1 and 2. Furthermore, i 6–9 seem to refer to a preceding discussion of the treatment of certain forms of fever (see n. ad loc., as well as 5234 fr. 2). The subject matter of this treatise may then not have been strictly confined to acute diseases, although fevers themselves are intimately connected with acute diseases in ancient nosology.

There are several indications that the treatise was written by a Methodist physician. At 5233 i 5 we have a mention of 'the first *diatrivus*'. The *diatrivus*, referring to the recurring third day of an illness, represents a therapeutic principle that determined the timing of a range of dietic remedies (see D. Leith, *CQ* 58 (2008) 581–600). It was developed by the Methodist Thessalus of Tralles (fl. 54–68), thus providing a *terminus post quem* for this treatise, and was fundamental to subsequent Methodist therapeutics, as attested in the works of Soranus and Caelius Aurelianus as well as by Galen's anti-Methodist polemics. On the other hand, we have evidence of the use of the *diatrivus* by non-Methodists, in particular in the Anonymus Parisinus (Leith, op. cit. 596–9), so that the reference here cannot by itself demonstrate Methodist authorship.

Additional indications of the Methodist background of this work are identifiable in its patterns of treatment for lethargy. Certain features stand out for their alignment with Methodist therapies and corresponding disagreement with extant non-Methodist traditions. In particular, at 5233 i 25–8 = 5234 fr. 1 i 5–7, it is stated that the patient should be roused 'without irritation' (χαριτε στραγγισθῆναι). A range of invasive measures to wake the patient from comas or catatonic episodes (καταβολαί) in lethargy are consistently prescribed by medical writers of the Roman period. Anon. Paris. 2.3.2, 4, 7–8 (14.4–11, 15–18, 16.14–18.2 Garofalo) recommends holding the patients' toes, bending their legs and pulling the hair growing on them, applying mustard rubefacients to the groin, mustard and castor to the nostrils, ptarmics generally, and finally blowing mustard and vinegar up the nostrils. Aret. 5.2.1 (CMG II 98.11–12) advises talking to lethargics, tickling them, squeezing their feet, pulling their hair, scratching them, and shouting in their ears. Aët. 6.3 (CMG VIII.2 129.16–22), drawing on the work of Archigenes and Posidonius, prescribes rubbing of the feet and hands, smelling drugs, fumigations, and ptarmics. Caelius Aurelianus also tells us that Diocles of Carystus (fr. 79 van der Eijk)

recommended sharp potions, constant rubbing, and ptarmics to rouse the lethargic (*Cel. Pass.* 2.7.33 (CML VI.1 148.27–150.8)), that Asclepiades sought constantly to wake the patient with ptarmics and smelling drugs as well as plasters of mustard and vinegar applied to the head (ibid. 2.9.37–8 (CML VI.1 152.15–30)), and that Heraclides of Tarentum also used ptarmics and smelling drugs for the same purpose (ibid. 2.9.54 (CML VI.1 162.23–7) = Heraclid. F 48.13–17 Guardasole); cf. also Cels. 3.20.1–2, 4 (CML I 129.4–9, 129.23–130.1).

It is only in the treatise on acute diseases written by the Methodist Caelius Aurelianus that a comparable concern to moderate the physician's methods of rousing the lethargic is attested. *Cel. Pass.* 2.6.26 (CML VI.1 144.29–146.2) recommends that the patient be woken gently and periodically by calling out his name (*per intervalla leviter excoctari suo nomine exclamatum*), adding that rousing the patient 'by continually tickling, squeezing and prickling him does nothing but aggravate the state of constriction because of the disturbance brought on by the commotion' (cf. also ibid. 2.7.33, 2.9.38–40 (CML VI.1 148.27–150.8, 154.1–21)). The state of stricture referred to is one of the common conditions central to Methodist pathology, and Caelius' justification for his moderation is derived directly from Methodist principles. The Methodists thus apparently saw themselves as treading a fine line between aggravating the patient, with its concomitant risk of exacerbating the underlying condition of stricture which characterized lethargy, and allowing the dangerous comatose states to continue. Practitioners of other doctrinal backgrounds, not acknowledging the relevance of such a condition of stricture, were accordingly not constrained in their eagerness to rouse the lethargic. The unique agreement of the papyrus text in seeking to restrict the means of rousing lethargics suggests that it was likewise based on Methodist principles.¹

There are also a number of less distinctively Methodist, though no less striking, parallels between the therapeutic recommendations in the new text and in Caelius Aurelianus' treatment of lethargy (cf. 5233 i 22ff., ii 5–8 nn.). The clear differences between them, however, show that the new text does not belong to Soranus' *On Acute Diseases*, which was Caelius' direct source.² On the other hand, these various similarities suggest that there was some relationship between Soranus' work and the papyrus treatise. In the therapeutic sections, it is Caelius' practice, and it was therefore probably also Soranus', to cite predecessors by name only

¹ Celsus (3.20.2–3 (CML I 129.9–22)) discusses the view that it is injurious to continue rousing the patient after the attack; but there is no question that the patient is to be roused energetically during the comatose periods, contrary to the Methodists' approach.

² The precise nature of Caelius' dependence on Soranus' *On Acute Diseases* and *On Chronic Diseases*, and the extent to which this may have varied between the different books or the different parts of books (e.g. in his prefaces), remain rather unclear. His manipulation of Soranus' Greek certainly went beyond mechanical translation; this is clear if only from the fact that he repeatedly refers to Soranus by name (though never in *Cel. Pass.* 1). K.-D. Fischer, in P. Maudy (ed.), *Le Traité des Maladies aiguës et des Maladies chroniques de Caélius Aurélianus* (1999) 141–76, demonstrates on the basis of an independent Latin translation of a fragment of Soranus' *On Chronic Diseases* that Caelius abridges and reworks his source text to a degree. Caelius refers to his own activity as 'latinizing' Soranus' books (*latinizare*, *Cel. Pass.* 2.1.8, 2.10.61 (CML VI.1 134.23, 170.29), a term which need not of course refer to direct translation. For a judicious overview, with references to earlier literature, cf. also P. J. van der Eijk, in id. (ed.), *Ancient Histories of Medicine* (1999) 415–74.

when pointing out their mistakes in treatment. Caelius very seldom describes the therapies of earlier doctors in order to commend them, and we can assume that some of those of which he approved would have been subsumed under his own recommendations without acknowledgement. In view of its Methodist authorship, and given the precise parallels in their therapeutic recommendations, I suggest that Soranus is likely to have known the work preserved in these papyri. One hypothesis is that they preserve fragments of Thessalus' treatise *On Regimen*. This work dealt with acute diseases in book 1 and chronic diseases in book 2. Soranus knew it well, and it certainly made use of the *diatrius*, of which Thessalus himself was the inventor. The circulation of individual works by Thessalus in Egypt is not confirmed until the third century (P. Vars. 5 v., P. Horak 2; see 5235 fr. 2 → 1 n.), but a mention of the *diatrius* in MP³ 2373.01 fr. A ii 43-4 (ed. I. Andorlini, in ed. (ad.)), 'Specimina per il Corpus dei Papiri Greci di Medicina (1997) 161), assigned to the late first or early second century, demonstrates at least the influence of his doctrine in Egypt by this date (cf. also LXXIV 4971 introd.). There is, however, no firm, positive evidence to support the attribution, and this work on acute diseases could equally have been written by another Methodist, though we hear of no such works after Thessalus besides those of Soranus and Caelius Aurelianus (cf. also 5233 i 6-9 n.). Given the second-century date of the earlier papyrus, and since Soranus' *floruit* can be located in the reigns of Trajan and Hadrian (*Suda* C 851 (iv 407.20-22 Adler)), it is also conceivable that the suggested influence was in the other direction. (The *Suda* entry states that Soranus worked in Alexandria; a fragment of Soranus' *Gynaecia* is preserved in PSI II 117 (MP³ 1483).)

A further comparandum is provided by the third-century medical fragment P. Golenischeff (MP³ 2347), which seems to preserve a fragment from the end of a book on acute diseases, and which likewise makes reference to the *diatrius* (cf. GMP II 15). P. Mil. Vogl. I 15 + 5235 also preserves a text on acute and chronic diseases, and mentions Thessalus and the Methodists specifically.

D. LEITH

5233. ON ACUTE DISEASES

101/66(a)

Fr. 1 9.6 × 9.6 cm

Second/third century
Plate IV

Four fragments containing remains of at least two columns, written against the fibres on the back of a tax roll, of which the text runs in the same direction. Fr. 1 preserves the upper margins of cols. 1 and ii and their intercolumnium; fr. 2 the lower margins of cols. 1 and ii and their intercolumnium; fr. 3 the upper and right-hand margins of col. ii. Fr. 4 remains unplaced, but the left margin survives, and, to judge from the remains on the front, it is more likely to belong to the lost portion of col. ii between fr. 1 and 2 than to col. i. There is a gap between fr. 1 and 2; a column will thus have contained more than 31 lines and been more than 14 cm tall. The upper and lower margins are intact and substantial, extending to 3.8 and 4 cm respec-

tively. The last line of col. i is c. 7 cm wide, and the intercolumnium is about 1-1.5 cm wide near the top. Six lines from the foot of col. ii, the scribe apparently felt that the column was encroaching too far into the intercolumnium, and the remaining lines stand on an alignment slightly further to the right. In the lower part of col. i, the scribe seems deliberately to have avoided an area in which a narrow strip of fibres has been partially dislodged, indicating that there was some damage to the papyrus already before it was used. There are also places in which another layer of papyrus has stuck to the surface, leaving stray traces of ink, especially in the upper part of col. i.

The text is written in an informal hand, leaning to the right, small and well-spaced, if somewhat untidy. The hand is generally bilinear, with ρ extending below the notational line, ϕ and ψ above and below. α has a triangular loop, μ is deep and curved, ν is Y-shaped, and ω broad, often rising only slightly in the middle. The cap of ϵ is greatly extended at line end. The hand may be assigned most probably to the later second century, but an early third century dating is possible. Comparable are VI 852 (*GMAW*² 31), assigned to the late second or early third century, and the more angular hand responsible for LII 3676 and LIII 3710, among other bookrolls, also assigned to the late second or early third century (Johnson's scribe #A5, *Bookrolls* 20-21).

The text is punctuated by paragraphs below i 11, 22, ii 9 (possibly forked), and 21. Blank spaces (i 2, 22) and high dots (i 4, 6? (see n.), 19) are used within the text to separate sense units, the former perhaps to mark stronger sense breaks. The blank space at ii 22 (accompanied by paragraph) corresponds to a similar space at the corresponding point in the text in 5234 fr. 1 i 2.

In the left-hand margin next to, and slightly above, ii 13, there is a sign resembling a small γ , with a short horizontal line below and to the right of it. The horizontal may be a paragraphus, though it is very close to the level of the crossbar of π at the beginning of the line. A stichometric letter, marking the 300th *stichos* of the treatise, is perhaps a possibility, but without more context for this sign its function remains obscure.

Wedge-shaped line fillers are found at i 3, 8, 19, and 29, and expulsion dots at i 2, 4, and 8. The ink of the expulsion dots is not distinguishable from that of the main text. The expulsion dot over ϵ in $\delta\epsilon$ at i 4 indicates elision. Elision is also used at i 19, the only other instance of an elidable vowel; apostrophe is not used in either case. There is a supralinear correction at i 27. Iota adscript is used sporadically, certainly at i 23 $\eta\iota\omega\omega$ and perhaps also at i 5 $\delta\alpha\alpha\pi\tau\eta\tau\omega\iota$ (cf. n.); it is omitted much more often, at i 2, 5, 23, 24, and probably ii 9. The scribe's erroneous addition of ι in $\beta\omega\eta\theta\eta\{\iota\}\mu\alpha\tau\alpha$ at ii 4 suggests that he is uncertain as to when it is needed. Confusions of ι and ϵ are found at i 23, 24, and 25. $\acute{\epsilon}$ is written for $\kappa(\alpha\iota)$ at i 23, apparently to save space at line end, since $\kappa\alpha\iota$ is elsewhere written out in full. An unusual sign after a in $\epsilon\alpha\upsilon$ at i 25, resembling a curved ' γ ', is perhaps meant as a circumflex, to indicate that the infinitive $\epsilon\acute{\alpha}\nu$ is intended.

In the articulated transcription, the parts present in 5234 are placed between upper half-brackets.

Col. i (fr. 1 (top) + 2 (bottom))

]οικενυδρομελιτη δρε
]αιω ενδιδου . . . δετης
]αρακοπηκ . . . την>
]πιτιθεται τ . . . φηνδεεν
]ηπρασηδιατ προσ
]ερευσηοσια αμεν
]πιτετω πυρες
]οντωνκαιεπιτ' υ . . . α>
]πιτωρ δε
] αυτη] . . .
] ης α] . . . c
] ακ υ] . . .
]] . . .

εαρ

]] . . .
] τα τ . . . τα
] εικαιτατω εφν
]υδνατο . . . υνδια
] τοιπετηθειον
]ευ ειν'αλλε >
]αφυνυ ερμασι
]πονηδ . . .]εδηλω
] τοιςδ . . .]ηθαργ[
]ο . . .] . . .]ικωφωτανωκ
]υκ . . .] . . .]ωκατα . . . νοντας
] α . . .]εικαταφερεςθαμει
] . . .]αμον νεκδια εμμη
] . . .]υδειεγειροντασχωρισ
]σ αραζμουτοδεμεγεθος
]απολαβοινηστρεσι>
]σημασιαςεπιβρεχειν
]τηνεκεφαληνσινεχωω

Col. ii (fr. 1 + 3 (top) + 2 (bottom))

οικκα[. . .] .
 χομε[. . .] .ον
 τωω[. . .] .πα
 ραλα[. . .] .ηι
 ματα[. . .] .αι
 ματ[. . .] .ιωσ
 χρη[. . .] .ικκα
 ταπ[. . .] .δε
 τηπ[. . .] .πιτου
 τωω[. . .] .υκ[
 . . .] .
 . . .] .
 . . .] .

εαρ

χπ[. . .] .
 [. . .] .
 κ . . .] .
 δ [. . .] .
 ν . . .] .
 μα[. . .] .
 κκ . . .] .
 επ[. . .] .
 δε [. . .] .
 ψυ[. . .] .
 στ . . .] .
 επ[. . .] .
 π . . .] .

Col. i (fr. 1 (top) + 2 (bottom))

]οις εν υδρομελιτη η υδρε-
]λαιω εν[διδ]ουοσχε δε της
]αρακοπης κ . . . την
]πιτιθεται, τρωφην δ' [ε] εν
]τη πρώτη διατηρωσι προσ-
]φ[ε]ρειν οποιον εισηκαμεν
]πι τε των υς πυρε-
]σωντων [και επι των] και
]πι των ρωμωδ[ος, απο δε
]τη τ[η]] . . .
] ης α] . . . c
] ακ υ] . . .
]] . . .

εαρ

.] . . .
] τα τ . . . τα
] ει και τα των σφυ-
]μων . . .]υ δυνατων ονν δια
] τον επιτηθειον
] ευρειν, αλλ' ες
] της παρ[α] φυνυ θερμασι-
]σιν εν τρω[σ]πον η' δη [δ] εδηλω-
]κα'μεν . . .] του'σ δε [ε] ληθαργ[(-
]κ)ου[σ] ε[ν] ρικκω φωτ'ενωρ κ(αι)
]ε[κ]ρη[(-]α]τω κατακλι'οντας
]αν [δ] ει καταφερεςθα, μ'ι-
]κ[α] μόνον' εκ διαλεμμη-
]των δ' ε']ειλεγειροντασ' χωρισ
]σπαραμου, το' δα μγεθος
]'απολαβοινηστρε της ε'πι-
]σημασιας'επιβρεχειν
]την κε'φαλην συν'εχωω

Col. ii (fr. 1 + 3 (top) + 2 (bottom))

οις και [ι] τοις φρε'νιτικοις: 'α]ρ-
]χομε[ν]αν' δ'ε και[ι]] ον-
]των [των παθων τ] πα-
]ραλα[μ]βάνων δε[ε] βοη]θη[ι]-
]μα'τα [και τη']τοσικη] το]υ αι-
]ματ[ο]σ' αφαιρεςει δ'μο]λωσ
]χρη[σ]θαι και τοις' . . .]οις κα-
]τ'απ[α]ρ[α]σσειν, πλ'ε'ιου]σ' δε
]τη' π[ι]]εου] επι τ'ου-
]των [μην]] . . .
] . . .
] . . .

εαρ

χπ[. . .] .
 [. . .] .
 κ . . .] .
 δ . . .] .
 ν . . .] .
 μα[. . .] .
 κκ . . .] .
 επ[. . .] .
 δε [. . .] .
 ψυ[. . .] .
 στ . . .] .
 επ[. . .] .
 π . . .] .

Col. i
 1, faint trace of vertical
 indeterminate traces 2, papyrus badly abraded, traces indeterminate
 3, fibres have come loose, but a small loop is visible, followed by a round letter
 4, traces largely indeterminate, but of the penultimate letter, a vertical sweeping upwards survives, as
 of the final stroke of ν or ω
 5, traces indistinct, but there are apparently the upper parts of two
 verticals in the middle of the damaged area
 6, papyrus badly abraded; of second letter, back
 and upper part of arc of $\epsilon\theta\omicron\varsigma$
 7, papyrus badly abraded; of second letter, fibres
 badly broken and abraded, but two diagonals forming an apex high in the line are visible of the antepenultimate
 letter, followed by the feet of two verticals
 8, indistinct traces
 9, fibres
 badly broken and abraded, but two diagonals forming an apex high in the line are visible of the antepenultimate
 letter, followed by the feet of two verticals
 10, trace at mid-height
 11, back of arc of round letter;
 indeterminate trace
 12, fibres badly broken and abraded
 13, trace at mid-height
 14, indistinct
 traces
 15, fibres badly damaged and abraded
 16, trace of vertical
 17, indistinct traces
 18, indistinct traces
 19, [two diagonals meeting at top
 (2)?; indistinct traces
 20, indistinct traces
 21, end of diagonal descending from left to
 right
 22, short vertical with end of diagonal apparently descending from its top; trace high in lines;
 obliques of α or λ ?; apparent trace of horizontal high in line; lower part of vertical; after τ , indistinct traces
 23, foot of diagonal rising from left to right; indistinct traces
 24, end of horizontal at mid-height
 25, trace of diagonal descending from left to right
 26, tip of horizontal or shallow, rising diagonal very high in line
 27, indeterminate
 traces of narrow letter
 28, vertical with traces high in line to right
 29, indeterminate
 traces at break in papyrus
 30, [single vertical survives
 31, tiny dot high in line
 32, vertical;
 indistinct trace
 33, tiny trace above mid-height
 34, letter forms seriously obscured by horizontal
 break in papyrus; of first letter, foot of vertical with small oblique low in line
 35, a, [indistinct trace at
 break high in line; a slightly convex horizontal stroke above the line which turns back on itself as it sweeps into
 a diagonal descending from right to left, like a large γ , with equal sides, drawn in one fluid movement
 36, a
 trace of ink beyond the right margin, perhaps casual
 37, part of vertical visible at mid-height
 38, indistinct trace at mid-height
 39, most resembles lower parts of obliques of λ , but a perhaps not ruled
 out
 40, indistinct trace, followed by oblique sweeping down from left to right and ending almost horizontal
 41, indistinct trace
 42, c, feet of two verticals

Col. ii

1, faint trace obscured by piece of papyrus stuck to surface
 2, vertical stroke at break
 3, indistinct trace at break
 4, indistinct trace
 5, vertical extending below normal lower
 line, with small stroke projecting upwards and to the right from its top, as of a or perhaps ρ
 6, very
 short vertical or back of curve
 7, upper and right part of round letter
 8, diagonal rising from
 low left to right (a λ)
 9, vertical (a possible)
 10, two blobs of ink high in line, one above the other
 11, downward tending stroke ending at mid-height, consistent with c
 12, traces obscured by loosened
 fibres
 13, fibres loosened and badly damaged
 14, indeterminate traces
 15, loop
 most consistent with that of a or δ
 16, short vertical or back of round letter
 17, vertical with
 top missing
 18, back of round letter
 19, faint trace at break at mid-height
 20, vertical
 with top missing
 21, spot of ink just below mid-height, apparently tip of gently rising diagonal
 22, diagonal rising from low left to right (a λ)

Fr. 4

1, [indistinct traces
 2, [of first letter, perhaps lower left corner of δ ; of second, indistinct
 trace
 3, indistinct trace
 4, vertical with damaged trace apparently projecting from mid-
 height, most resembling κ
 5, [back of round letter with flattened top (c)
 6, [indistinct trace

1, [indistinct traces
 2, [of first letter, perhaps lower left corner of δ ; of second, indistinct
 trace
 3, indistinct trace
 4, vertical with damaged trace apparently projecting from mid-
 height, most resembling κ
 5, [back of round letter with flattened top (c)
 6, [indistinct trace

... in hydromel or water and olive oil. When the delusion has subsided, (it is necessary) to apply a
 ceate (?), to prescribe food in the first *diatristis* of the sort we have mentioned both in the case of those with
 ... fever and in the case of those with fever characterized by flux, but from this day ... pulses. Therefore it is
 not possible to find the appropriate ... through ... but from the unusual heat in the manner we have already
 made clear. It is necessary to have leithargics lie down in a room that is bright and of moderate temperature, (to
 allow) them to slip into a catatonic state, rousing them only a little at intervals without irritation, but when the
 attack reaches its height, to foment the bed continually with the same things as we apply to phrenitics. When
 the affections are beginning and (increasing (?)), one should apply (the same) (?) remedies and use localized
 bloodletting in a similar way and apply a plaster with (the same ingredients) (?), but with more ... in these
 cases (?).

Col. i

1-2 The previous column may have described the prescription of a remedy such as a poultice or plaster,
 with ingredients to be boiled or soaked 'in hydromel or in water and olive oil', e.g. $\delta\eta\eta\theta\mu\epsilon\lambda\lambda\omicron\upsilon\epsilon$ or $\delta\sigma\theta\epsilon\text{-}$
 $\beta\epsilon\eta\gamma\mu\epsilon\lambda\lambda\omicron\upsilon\epsilon$.

3 παρακοιμία. A delusional episode particularly associated with attacks of phrenitis: cf. e.g. ps.-Gal.
Def. Med. 234 (ix 412.16-17 K) $\phi\eta\sigma\iota\tau\iota\kappa\epsilon\ \epsilon\sigma\tau\iota\ \pi\alpha\tau\alpha\kappa\omicron\iota\mu\iota\alpha\ \mu\epsilon\tau\alpha\ \delta\acute{\epsilon}\lambda\omicron\varsigma\ \mu\eta\mu\epsilon\tau\omicron\upsilon\varsigma$ ps.-Gal. *Int.* 13.9 (xiv
 732.18-19 K = 51.4-5 Petit) $\phi\eta\sigma\iota\tau\iota\kappa\epsilon\ \mu\epsilon\tau\alpha\ \delta\epsilon\tau\iota\mu\ \epsilon\lambda\epsilon\gamma\kappa\alpha\tau\iota\kappa\alpha\ \delta\iota\alpha\kappa\omicron\iota\alpha\ \mu\epsilon\tau\alpha\ \pi\alpha\tau\alpha\kappa\omicron\iota\mu\iota\alpha\ \epsilon\phi\theta\omicron\upsilon\beta\epsilon$. There are, for
 instance, seven attestations of the term in Anon. Paris, of which five are found in the chapter on phrenitis
 (1.1.3, 1.2.4, 1.3.5, 1.3.6, 1.3.11 (2.14-15; 4.9; 6.7, 16; 8.25 Garofalo)); the other two are in the chapters on colic and
 nephritis (5; 2.3, 37.2 (32.17, 194.2 Garofalo)).

4, 5, 7¹⁰. The visible traces, and the direction to lay the object upon the patient (4 $\epsilon\lambda\eta\mu\epsilon\theta\epsilon\lambda\omicron\upsilon\iota$), suggest
 that $\kappa\upsilon\pi\tau\omicron\upsilon\tau\iota\varsigma$ is a salve or ceate, should be restored. Anon. Paris. 1.3.7 (8.3 Garofalo), for example, prescribes
 poultices of bread soaked in a rose ceate ($\delta\omicron\delta\iota\eta\gamma\ \kappa\upsilon\pi\tau\omicron\upsilon\tau\iota\varsigma$) for phrenitics; cf. also Aet. 5.1.21 (CMG II 96.12).

4-6 The prescription of food 'in the first *diatristis*' is one of the most commonly attested Methodist uses
 of the *diatristis* system: cf. e.g. Cacl. Aus. *Col. Pas.* 3.17.146 (CML VI.1 378.33) *abstinentia cibi usque ad primam*
diatristis; *Tard. Pas.* 1.1.8 (CML VI.1 434.1-2) *cum abstinentia cibi usque ad primam diatristis*; *Soc. Gyn.* 3.28

(iii 18.80 BGM) ἀποχρῆ τροφῆς ζωε διατρέσει; 4.37 (iv 27.108-9 BGM) καὶ ἑσθ' ἄλλω ἄχρι διατρέσει καὶ τότ' ἀδιδόνα τροφῆν ἀπάρη (for details, cf. D. Leith, *CQ* 18 (2008) 591-8). For Thessalus and the *diatraxis* in the papyrus, cf. LXOIV 4971 and 5235 below.

5 διατρέσει. The available space appears to indicate that iota adscript was written, and there is an indeterminate trace before π which does not seem to belong to ω .

6-9 These lines apparently refer back to an earlier discussion of the therapy of certain kinds of fever. Separate discussions of fever, however, are not attested in any of the surviving treatises on acute diseases (those of Aretaeus, Anon. Paris, and Caelius Aetianus), though fever was recognized as invariably accompanying acute diseases such as phrenitis and lethargy. Perhaps this treatise was not restricted to acute diseases. The work in which Thessalus set out his treatment of acute and chronic diseases was entitled *On Regimen*, with acute diseases dealt with in book 1, and chronic diseases in book 2. Such a title suggests a broader content than the treatment of acute and chronic diseases alone, and for the Methodists, fevers certainly fell under the category of affections to be treated by regimen. 5234 fr. 2 contains a discussion of the type of food to be given in certain fevers, and when to give it.

6 There is a spot of ink opposite this line at mid-height, resembling the high dots used as punctuation elsewhere (i 4. 19). The sentence must, however, continue on to the next lines, and we do not want a sense break at this point. It could be stray ink, or a mistake.

7 perhaps e.g. $\tau\epsilon\tau\alpha\rho\acute{\alpha}\tau\epsilon\varsigma$, $\epsilon\theta\eta\rho\acute{\alpha}\tau\epsilon\varsigma$, $\epsilon\tau\epsilon\tau\epsilon\rho\acute{\alpha}\tau\epsilon\varsigma$.

8 $\lambda\epsilon\iota\tau\alpha$ ἐπὶ τῷ α : ditigraphy resulting from homoeoteleuton.

9 $\rho\omega\mu\acute{\alpha}\tau\epsilon\varsigma$. The counterpart (signalled by $\epsilon\iota\sigma\alpha$ καὶ) of the type of fever mentioned at 7: cf. e.g. Cass. *Probl.* 711 Garzya (p. 63) = 70 Ideler (I 164.14) δὴ ἐπὶ τῶν $\rho\omega\mu\acute{\alpha}\tau\epsilon\varsigma$ $\mu\epsilon\tau\epsilon\sigma\tau\epsilon\tau\epsilon\tau\epsilon\sigma\sigma\epsilon\iota\sigma\iota$ κτλ.; ps.-Gal. *Def. Med.* 191 (3ix 147-400.2 K.) καὶ $\rho\omega\mu\acute{\alpha}\tau\epsilon\varsigma$ $\mu\epsilon\tau\epsilon\sigma\tau\epsilon\tau\epsilon\sigma\sigma\iota$; Dsc. 5.26 (iii 211.16 W.); 5238 32.

10 $\tau\alpha\tau\acute{\alpha}\tau\epsilon\varsigma$. This will refer to the *diatraxis*, i.e. the third day from the beginning of the illness, apparently introducing details of the subsequent therapy.

11-19 $\rho\theta\alpha$ at 17 seems to indicate some connection to the pulses mentioned at 16-17. The initial trace in 18 would be consistent with ω , perhaps δὴ [τῶν $\rho\theta\alpha$], should be restored ('Therefore it is not possible to find the appropriate ... by means of this (i.e. by checking the pulses), but from the unnatural heat ...'). Alternatively perhaps restore $\sigma\theta\omega\sigma\alpha$ before $\epsilon\theta\eta\rho\acute{\alpha}\tau\epsilon\varsigma$ at 19. No obvious candidates for the object in agreement with $\epsilon\theta\eta\rho\acute{\alpha}\tau\epsilon\varsigma$ have suggested themselves. ('Perhaps τῶν $\epsilon\theta\eta\rho\acute{\alpha}\tau\epsilon\varsigma$ [σπέρμ] [WBH].')

20 Before $\theta\epsilon\mu\alpha\kappa\acute{\iota}\sigma\epsilon$, 5234 fr. 1 i i has a word ending $-\mu\epsilon\theta\epsilon\varsigma$, here omitted; probably ($\gamma\sigma\omega\mu\epsilon\theta\epsilon\varsigma$) should be supplied (cf. n.).

21ff. The author's prescriptions for the treatment of lethargy are closely paralleled in a number of respects at Cacl. *Aur. Cel. Paus.* 2.6.26-7 (CML VI.1 144.19-146.6). The correspondences in regard to the avoidance of extreme measures to waken the patient, as well as the relation of these to Methodist doctrine, have been discussed in the introduction, but there are a number of further, less therapy-specific, similarities. The passage is worth quoting at length:

et oportet iacere in loco lucido atque calido mediocriter, in occasione per intervalla leviter excitari suo nomine exclamatum. etenim ingitri stitillata vel impressione ac punctationibus hoc facere nihil aliud quam strictus $\alpha\mu\sigma$ erit aspirare ob inquietudinem quassationis. debent etiam articulares frictamentis utendum est. erit autem $\alpha\mu\sigma$ accessione lugis fomenta capiti circumdata, oleo dulci atque calido.

Caelius provides detailed comment justifying his therapeutic recommendations. Such comment is absent in the papyrus text. Otherwise there is a striking verbal resemblance in the remedies prescribed by each author, which are also found in the same order: for both writers, the patient should be made to lie down in a bright and moderately warm room; during the attacks (of catatonias), the patient should be roused non-invasively at intervals; and the head should be fomented continually using the same liquids as used for phrenitis (for Caelius' use of sweet, warm olive oil in fomentations for the head in phrenitis, see *Cel. Paus.* 1.9.67 (CML VI.1 60.11)). The

main difference is the absence of a reference to massaging the limbs, and the immediately following therapies in Caelius have no counterparts in the papyrus.

24 $\kappa\alpha\tau\alpha\lambda\epsilon\theta\epsilon\iota\sigma\alpha$, $\rho\theta\eta\rho\acute{\alpha}$: apparently written: cf. introd.

25 $\kappa\alpha\tau\alpha\theta\epsilon\mu\epsilon\tau\alpha$ refers to the catatonic episodes ($\kappa\alpha\tau\alpha\theta\epsilon\mu\epsilon\tau\alpha$) which are one of the main symptoms of lethargy; cf. ps.-Gal. *Def. Med.* 235 (3ix 413.5-6 K.) $\lambda\theta\eta\theta\alpha\rho\gamma\acute{\iota}\alpha$ $\epsilon\sigma\tau\iota$ $\kappa\alpha\tau\alpha\theta\epsilon\mu\epsilon\tau\alpha$ $\delta\iota\epsilon\sigma\tau\epsilon\lambda\epsilon\theta\epsilon\tau\epsilon\sigma\tau\epsilon\varsigma$ $\mu\epsilon\tau'$ $\alpha\lambda\gamma\mu\alpha\tau\alpha$ $\alpha\dot{\iota}\theta\eta\mu\alpha\tau\alpha$ $\phi\alpha\sigma\iota\delta\omega\kappa$.

27 $\delta\epsilon$ $\lambda\epsilon\iota\tau\epsilon\theta\epsilon\sigma\tau\epsilon\sigma\sigma\alpha$. $\delta\epsilon\iota$, the reading before correction, may have been influenced by [6] $\epsilon\tau$ at 25.

28 $\epsilon\pi\alpha\rho\alpha\gamma\mu\acute{\alpha}\tau\iota$. I take this to characterize the irritating and invasive methods used by other physicians to rouse lethargics, but of which the author disapproves, such as pulling the hairs of the legs, scratching, tickling, applying ptarmic, etc. (see introd.). Cf. *Soz. Gyn.* 3.28.7 (ii 29.106 BGM) $\tau\acute{\alpha}\delta\epsilon$ $\epsilon\lambda\lambda\epsilon\theta\epsilon\beta\sigma\sigma\alpha$ $\lambda\epsilon\upsilon\kappa\omega\iota$ $\epsilon\pi\alpha\rho\alpha\gamma\mu\acute{\alpha}\tau\iota$; also *Cacl. Aur. Tard. Paus.* 1.4.11 (CML VI.1 494.29-30), where it is rendered by *agitatio*.

Col. II

2 $\delta\acute{\iota}$ (restored); see 5234 fr. 1 i i n.

2-3] $\acute{\alpha}\rho\iota\sigma\tau\alpha$. Of the first letter, a short vertical, with perhaps a trace of a diagonal joined to its foot, as of ν . This participle, following $\acute{\alpha}\rho\omega\mu\acute{\alpha}\tau\omega\sigma\alpha$, should refer to a particular stage in the development of lethargy. This suggests perhaps $\alpha\nu\sigma\theta\eta\mu\acute{\alpha}\tau\omega\sigma\alpha$, describing the period of a disease's increase in intensity after its beginning; cf. ps.-Gal. *Int.* 13.7 (xiv 731.9-12 K. = 49.24-50.1 Petz) $\acute{\alpha}\rho\theta\epsilon\mu\alpha\tau\omega\sigma\alpha$ $\delta\epsilon$ $\kappa\alpha\tau\alpha\tau\omega$ $\rho\omega\theta\eta\theta\eta\mu\acute{\alpha}\tau\omega\sigma\alpha$ $\epsilon\nu$ $\tau\epsilon$ $\delta\lambda\omega$ $\tau\acute{\alpha}\rho$ $\nu\sigma\theta\eta\mu\alpha\tau\iota$ $\kappa\alpha\iota$ $\tau\alpha\iota\varsigma$ $\mu\epsilon\mu\alpha\kappa\acute{\iota}\alpha$ $\epsilon\pi\epsilon\sigma\tau\epsilon\mu\alpha\sigma\iota\sigma\iota$ $\epsilon\kappa\epsilon\iota$ $\tau\epsilon\sigma\alpha\epsilon\tau\epsilon\varsigma$, $\acute{\alpha}\rho\theta\eta$, $\acute{\alpha}\nu\theta\epsilon\mu\alpha\tau\iota\varsigma$ (V: $\acute{\alpha}\nu\theta\epsilon\mu\alpha\tau\iota\varsigma$ M), $\acute{\alpha}\mu\epsilon\mu\iota$, $\mu\alpha\rho\alpha\kappa\eta\mu\acute{\iota}$; *Opt. Sect.* (I 199.6-8 K.) $\alpha\kappa$ $\kappa\alpha\tau\alpha\tau\omega$ $\nu\alpha\sigma\tau\eta\mu\alpha\tau\omega\sigma\alpha$ $\kappa\eta\tau\iota\sigma\tau\eta$ $\mu\eta$ $\mu\omega\iota\varsigma$ $\kappa\alpha\tau\epsilon\chi\eta\varsigma$ $\tau\omega\sigma\alpha$ $\alpha\iota\tau\iota\omega\sigma\iota$, $\kappa\alpha\iota$ $\acute{\alpha}\theta\epsilon\tau\alpha$ $\acute{\alpha}\rho\theta\eta$, $\acute{\alpha}\nu\theta\epsilon\mu\alpha\tau\iota\varsigma$, $\acute{\alpha}\mu\epsilon\mu\iota$ $\kappa\alpha\iota$ $\mu\alpha\rho\alpha\kappa\eta\mu\acute{\iota}$; also *Gal. Diff. Feb.* 2.17 (vii 400.16-17 K.), *Cris. Lit.* (ix 623.1-4 K. = 114.25-115; Alexanderson). For the corresponding use of the participle, see e.g. *Gal. Comp. Med. Loc.* 6.9 (xii 993.5-7 K.) $\mu\eta$ $\acute{\alpha}\rho\chi\omega\sigma\tau\omega$ $\tau\omega$ $\nu\acute{\alpha}\theta\omega\sigma\iota$ $\mu\epsilon\tau\epsilon\sigma\tau\epsilon\tau\omega\sigma\iota$ η $\acute{\alpha}\nu\theta\epsilon\mu\alpha\tau\omega\sigma\alpha$ η $\kappa\alpha\tau\alpha\theta\epsilon\mu\alpha\tau\omega\sigma\alpha$ η $\acute{\alpha}\rho\mu\alpha\kappa\acute{\iota}\zeta\omega\sigma\iota\varsigma$ η $\mu\alpha\rho\alpha\kappa\eta\mu\acute{\iota}\zeta\omega\sigma\iota\varsigma$. Verb forms of the alternate names used for the second, 'increasing' stage of an illness, viz. $\acute{\alpha}\nu\theta\epsilon\mu\alpha\tau\omega\sigma\iota\varsigma$ and $\acute{\alpha}\theta\epsilon\tau\omega\sigma\iota\varsigma$, do not fit the traces or the available space. $\acute{\alpha}\nu\theta\epsilon\mu\alpha\tau\omega\sigma\iota\varsigma$, however, might also be considered, in a similar sense: cf. e.g. *Hip. Pnuc.* 8 (ix 262.10-11 L. = CMG L II 33.9) $\acute{\alpha}\nu\theta\epsilon\mu\alpha\tau\omega\sigma\iota\varsigma$ $\tau\omega$ $\nu\acute{\alpha}\theta\omega\sigma\iota$.

3 ν For the suggested restoration of $\tau\alpha$ $\acute{\alpha}\nu\tau\acute{\iota}$ $\alpha\kappa$ or $\tau\alpha\acute{\alpha}\tau\acute{\iota}$, see 5234 fr. 1 i i 12-13 n.

4-5 $\beta\theta\eta\mu\acute{\alpha}\tau\iota$ $\mu\alpha\tau\alpha$. The final letter of 4 is a clear ι (rather than, for example, a malformed line filler), but the corresponding trace at 5234 fr. 1 i 3 certainly reads $\beta\theta\eta\mu\alpha\tau\omega\sigma\iota\varsigma$. There is no trace of a deletion.

5-8 Similar therapeutic recommendations, including both withdrawal of blood and plasters, as well as references to treatments previously described for phrenitis, are found in the treatment for lethargy described at *Cacl. Aur. Cel. Paus.* 2.6.29 (CML VI.1 146.30-32): *hinc licet in phrenitide interdum caput atque interdum et opporta curabitur scarificationum et sanguinis resectionum*.

6 $\acute{\alpha}\lambda\mu\alpha\kappa\acute{\iota}\sigma\epsilon\sigma\alpha$ seems an unavoidable supplement after $\tau\eta\eta$ $\rho\omega\mu\acute{\alpha}\tau\omega\sigma\iota$ $\tau\omega$ $\acute{\alpha}\lambda\mu\alpha\tau\omega$. 'Localized' will refer to the letting of blood from the area of the head, generally regarded as the affected part, or at least that affected most, in lethargy, as in phrenitis; cf., from a Methodist perspective, *Cacl. Aur. Cel. Paus.* 2.6.26 (CML VI.1 144.22-7). The intended method of drawing blood could have involved simple venesection, or the use of cupping vessels or leeches; cf. e.g. the association of the corresponding Latin phrase *detrahit sanguinis* with both cupping and leeches at *Cacl. Aur. Cel. Paus.* 1.11.76 (CML VI.1 64.19-25).

7 $\rho\omega\iota\varsigma$... $\rho\omega\iota\varsigma$. This sequence will have specified the type of medications to be used in the plaster, but as at ii 3 = 5234 fr. 1 i 12-13, there may well have been a reference to previous recommendations: i.e. $\tau\omega\iota\varsigma$ $\acute{\alpha}\nu\tau\acute{\iota}$ $\rho\omega\iota\varsigma$?

9 ν [cf. e.g. $\nu\acute{\alpha}\lambda\alpha\gamma$]. The use of $\nu\acute{\alpha}\lambda\alpha\gamma$ $\acute{\alpha}\lambda\phi\epsilon\tau\omega\sigma\iota\varsigma$, fine meal, for plasters is well attested (cf. e.g. *Soz. Gyn.* 1.10.3, 3.2.3, 3.4.7 (I 49.73, ii 62.1-4, iii 45.69 BGM)), and if a previous recommendation is being referred to here (cf. 7 n.), the normal specification, $\acute{\alpha}\lambda\phi\epsilon\tau\omega\sigma\iota\varsigma$ or $\acute{\alpha}\lambda\phi\epsilon\tau\omega\sigma\iota\varsigma$, can perhaps be omitted. ('Then e.g. $\nu\alpha\iota$ $\beta\epsilon\tau\epsilon\theta\epsilon\iota$ ' [WBH].')

The paragraphus is damaged on the left, but the traces suggest that it may have been fixed.

5234. ON ACUTE DISEASES

17 2B.56/B(c) + 8t 2B.85/36(d)

Fr. 1 8.5 × 13.5 cm

Second century
Plate V

Two fragments with text written across the fibres on the back of a documentary text running in the same direction. Fr. 1 preserves parts of two columns with intercolumnium (1 cm wide) and the upper margin of col. 1 (extending to 2.6 cm). Fr. 2 contains the remains of a single column broken on all sides. The text on the front of fr. 2 consists of the ends of lines, while that on the front of fr. 1 extends across the full width of the papyrus but only about a third of the way down.

The text is written in a medium-sized, rounded hand, leaning slightly to the right, with bilinearity breached regularly by ρ and τ (below) and ϕ (above and below). Small finials are often found on verticals, especially those of ν and τ . The loop of α is pointed, sometimes with its left oblique almost vertical. β is formed of an L with a curved stroke added for the small upper and broad lower loops; the base may project to the right. δ has a very broad base. The crossbars of ϵ and τ may be markedly extended. θ is oval and small, with its crossbar projecting slightly to either side. ω is rounded, and often looped at its second apex. The bowl of ν may be deep or shallow. μ is broad and rounded, with a high cusp in the middle. The hand may be compared with that of Π 231 (Johnson, *Bookrolls* Pl. 1) + P. Laur. inv. III/284A, assigned to the late first or early second century, and the neater hand of XXV1 2441 (*GMAW*² 22), assigned to the second century. A date in the earlier second century seems most likely.

As in 5233, blank spaces are used to punctuate the text (fr. 1 i 2). Abbreviations are found, μ for $\mu(\acute{\epsilon}\nu)$ at fr. 1 i 17 and $\acute{\alpha}$ for $\acute{\alpha}(\alpha\iota)$ at fr. 1 i 18. Iota adscript is always written when needed in both fragments. $\epsilon\iota$ is used at fr. 1 i 4 for the only instance of long ι , as it is in the corresponding place at 5233 i 24; cf. also fr. 2.20 n.

Comparison with the restored text of fr. 1 suggests that approximately eight letters are lost in each line of fr. 2, but no obvious restorations have suggested themselves at any point. The text seems to be concerned in the main with dietetic therapy, which could certainly be dealt with in the text to which fr. 1 belongs: there are repeated mentions of food (fr. 2.16, 21), and remains of what must be descriptions of appropriate kinds of food to be administered (9-10). The single mention of fever at 16 is the only indication of the pathological context, though this can tell us little by itself given that most forms of acute disease were accompanied by fever. Interestingly, however, there is a reference at 5233 i 4-9 to a previous section of the treatise describing a form of food appropriate for certain kinds of fever ('it is necessary) to prescribe food in the first *diatrisis* of the sort we have mentioned both in the case of those with ... fever and in the case of those with fever characterized by flux'). There are no specific parallels here, and it is difficult to regard this as more than coincidental, but it remains a possibility that fr. 2 derives from an earlier part of the treatise which dealt with fevers rather than with acute diseases (see also 5233 i 6-9 n.).

In the articulated transcription, the parts present in 5233 are placed between upper half-brackets.

Fr. 1 col. i

1	]μηνε, ερμασιας, [	]μηνε 'θερμασι'αc δ[ν
	] ηδεθλωκ. του[	τρο' που η]δη δεθλωκ'κα. 'του[ε
	]ι ουσενουκωφωτ[	δ'ε λ'ηθλαρ]ικ'ου'c ε'ν οικωc φωτ[ει-
	]α ωικ τακλει[	νωc και' ε'υκρ]α'τοιc κατακλι'νον-
5	]εικαταφερεc θαμι[	ταc ε'αν' δ]ε'ει καταφ'ερεθαι, μ[ε'-
	]εκδιαλειμματων, ι	κ'ρ'α μ'ονου εκ διαλειμμα'ν' αν δι-
	]χωρισσαρα, μου, ο	εγε'ερονταc] χωριc σπαρασμο'υ, το
	]απολαβουcρητ, .	δε με'νεθωc] απολαβουcρηc της ε-
	]ρεπιβρεχειντην[]ε	πιcθημαc]c επιβρεχειν την η[ε-
10	]εχωικωικαιτουcφ[]ε[	φαλην ει]ν]εχωc οc κα'ι' τουc φ]ε[ε-
	] , χομενω[]εκ . [	ντικωc.] ε'ε'ρχομε'νω]ν [δ]ε και
	] , ωντανπαθων, . [	. . . . . ' ον]τω'ω' τ'ων παθων τα. [
	]βανωδεβηθ]μα	. . . . . παραλα]μ]βανει δεβ]βηθημα-
	] οπικριτουα[]ματο,	τα' κα' τη]ν τροπικηι το'υ α[τ]ματ'οc
15	]μουω, χρ . θ. []κατω[]c	αφαρεσει δ]μο'ιωc χρηc'θη[α] κα] το[τ]ic
	] , πλα, cειωπ, [] , οντ, .	. . . . . 'ουc κατα]παλ'αcσειν παλ[ε]ισω'ι τη]
	] εον, π[ε]ρ[] , ωμι	π']εων' ε'πι τ[ου]τω'ν' μ[ε]ν
	] , κπ[] , cβ [] , τω[ ]	. . . . . ] , κ(α)ι π[] , [cβ [] ,]τωω[]
	] του[] , [] , [] , κλυcμ[ ]	] του[] , [] , [] , κλυcμ[]
20	] , [ ] , [ ] , τωι[] ,]φρεω[ ]	] , [ ] , [ ] , τωι[] ,]φρεω[]
	] , . ρο, [] , . ρο, [ ]	] , . ρο, [] , . ρο, []
] , [] , [] , []] , [] , [] , []
] , []] , []

1 c, damaged traces high in line of upper arc with horizontal just below, as of ϵ or θ μ , the form of μ is clear enough, but considerably compressed laterally, as if corrected from an original λ [back of round letter
2], right tip of horizontal low in line , obliques of ϵ or λ 3, trace of upright on dislodged fibre, otherwise indeterminate 4, right-hand part of longitudinal high in line, touching ω , consistent with τ κ, indeterminate traces around hole 6, curving diagonal descending from left to right, perhaps with trace of base of δ 7 a, foot of vertical at left, with end of horizontal high in line at right touching subsequent μ ν , indeterminate trace high in line 8, back arc of round letters end of horizontal at mid-height η , tiny trace at mid-height; trace high in line [small trace low in line (foot of vertical?), then oblique, as of α or λ , touching vertical just below mid-height 12, only vertical remains, extending slightly below lower extremities of subsequent ω 13, part of diagonal descending from left to right at mid-height; faint traces obscured by stray fibres 19, remains of two verticals either side of last, narrow strip of papyrus 14], right tip of horizontal touching α at top (τ) ϕ , right tip of indeterminate stroke low in line 15 ω , upper left part of round letter (no trace of midstroke of α) ρ , . . .

indeterminate traces, then faint trace of short upright 6 a. |, upright curving slightly to left in lower half, with top obscured, v or λ, perhaps κ, among possibilities 9 . |, foot of vertical, slanting slightly to left; foot of diagonal rising steeply from left to right 10 v, trace high in line close to subsequent v 11 |, of first letter, small trace of descending diagonal mid-line; of second, diagonal descending from top left to bottom right, as of α, β; of subsequent two letters, peaks of apparently narrow triangular letters, λ; of last letter, trace high in line p . . . very small left-facing hook high in line; indeterminate traces 12 |, v; specks; trace of upper curve of round letter faintly visible above hole in papyrus 13 |, back of rounded letter; traces high in line 14 |, upper half of descender at break 15 |, specks of ink; then upper part of diagonal descending to right from high in the line; upper part of circular letter δ, small trace high in line on edge of large hole 16 |, remains of vertical, stroke joining to right from 17, a circular letter which may or may not be closed at right, ε, or ω; high trace above hole 18, indeterminate traces; foot of vertical, with small left-facing serif 19 | p, faint speck high in line, with another beneath and to right at notional lower line level 20 |, to the right of η, on a displaced strip, a small supralinear trace suggesting the lower arc of a circle 21 |, midline, trace of upward-facing curve; top of descender in upper half of line; right-hand side of left-facing circular stroke; two consecutive high peaks with damage below 22, two holes in papyrus leaving only two small specks high in line, belonging to one large letter, or two small ones 23 |, faint specks |, c, narrow, right-facing crescent, perhaps second upright of η 24 |, top of vertical high in line 25 |, indeterminate traces 26 |, indeterminate trace; foot of descending stroke, with right-facing hook, as of ε, γ 27 |, traces suggesting an upright λ, specks τ, left side of circular letter survives at break, touching crossbar of τ 28 |, damaged traces 29 |, feet of two uprights, the first extending below the notional lower line; trace of stroke low in line curving to right 30 |, damaged traces, the fourth perhaps α 31 |, specks 32 |, thick top of upright; upper part of crescent, ε rather than ε; top of upright 33 |, faint trace high in line; descending diagonal, with trace of oblique at left below top, as of α, δ, λ 34 |, damaged traces, the fourth an upright 35 |, trace of shallow bowl 36 |, damaged traces 37 |, damaged traces 38 |, damaged trace 39 |, specks 40 |, specks

Fr. 1 col. i

1 | μόνος. This word is not written at 5233 120, but as the text given there makes good sense, it is unlikely that much has been omitted. The simplest hypothesis is that 5234 read ἐκ τῆς σπῆς | φέων γεννημένους θεμασίας, 'from the heat that comes about contrary to nature'. The omission of γεννηένους does not of course affect the general sense. Cf. e.g. Gal. *MM*13-4 (x 880.6-7 K.) διὰ θερμοκρασίαν τὴν παρὰ φύσιν ἐκ ἀσπίθ' γεννημένους Alex. *Tracl. Therap.* 10 (ii 461.10-11 P.) ἀπὸ τῆς θερμότητος γεννηόμενος θεμασίας ἐκ ἀσπίθ' γεννηόμενος Alex. *Tracl. Therap.* 6-7 δ[ε] γινώσκονται. For the restoration, which is a good fit for the space, see 5233 127 n.

11 | β[ε] This is clearly the second word of a new sentence, and [β] rather than [r] should probably be restored.

12 ἀρ[ι]στου. For the possible restoration ἀνάβλασθέντων, see 5233 12 3 n.
12-13 | In the adjacent lines, the author repeatedly recommends remedies for the lethargic which had previously been prescribed for phrenitics (10-11, and 15 ὁμοίως). This and the small amount of space available suggest the restoration of πᾶσι ὁμοίως or πᾶσι ἰσῶς, 'the same remedies', as described earlier for phrenitics (the tiny high trace at the end of 12 could suit either α or ω).

16 π[ε] corresponds to π[ε] at the beginning of 5235 11 9. There is no trace, however, of δ[ε] in 5234, although this is written immediately before π[ε] in 5235, at the end of R. As far as I can see, this is the only indication, and a very weak one, that 5233 may be a copy independent of 5234.

17 For a possible supplement, see 5233 11 9 n.

18 π[ε] = [π] = [ε]

19 | ελευσι; e.g. (-)ολύματα or (-)ολυσιμαί in some case (WBH).

Fr. 1 col. ii

16 δ σφραγισός. Given the mention of the pulse at 5233 116-17, although in the plural there, the suggested restoration seems likelier than a reference to the loins, ὀσφίς.

Fr. 2

7 ἀρροδοισιματα or δευτετερα?
9 πρᾶξι τὸ καὶ ποικίλη, 'much and varied', qualifying τροφή
10 κρέασις ('meaty') is suggested by the context (descriptions of types of food to be prescribed).
12 τοῦ χρόνου or τοῦ αὐτοῦ χρόνου.
15 ὀνομασθῆναι, ὀνομασθῆναι.
17 πῆμασις? (WBH).
18 τοσαύτην. The dative singular τοσαύτην, with iota adscript, is also possible.
20 ὁ[μ]οίως|μ[ε]τὰ|μ[ε]τὰ (cf. Fr. 1 16 δὲ διαλεγεμένους) would appear to require more space between λ and the first μ, but the word may have been written with -ι- for -ι-.
ἀσπίθ'. Most likely a form of ἀσπίς, 'thick, substantial', describing the type of sustenance that is to be given to the patient. It is opposed to ῥοφθιμασίονος, 'gruel-like', e.g., in Archig. ap. Aët. 11.1 (21.6-8 K.) ἡ δὲ διαίτα ἐν τοῖς παροξυσμοῖς ῥοφθιμασίονος ἐστὶ καὶ ἀλέη, ἐν δὲ τοῖς διαλεγεμένοι ἀδρότερα καὶ ἀναληπτικότερα. Cf. also Sor. *Gym.* 2.22.3 (ii 33.30-31 BGM); Anon. *Patris.* 35.1.2 (190.7-8 Garofalo).

D. LEITH

5235. ON ACUTE AND CHRONIC DISEASES

115/113(a)

Fr. 1 2.1 x 3.8 cm

Early fourth century
Plate XIV

Two further fragments of the papyrus codex P. Mil. Vogl. I 15 (MP³ 2340), a medical treatise in question-and-answer format, devoted to the definition, cause, signs, and therapy of various acute and chronic diseases. I have argued for a reconstruction of the sections on causes in the Milan fragment that would give the codex an average of c. 34 letters per line and a written area about 11.5 cm wide (*ZPE* 189 (2014) 225-32, with photographs (226)).

The practised, angular hand is discussed by I. Andorlini, *Pap. Congr. XX* (1994) 412-13 with pl. 30, who assigns it to the early fourth century, comparing P. Herm. 4 and 5 (*GBEP* 2a, *GMAW*² 70) of c. 317-23 and other fourth-century hands. A. E. Moretti, *AnPap7* (1995) 22, assigns it to the same period. D. Manetti and R. Luiselli compare the hand of P. Ryl. III 530 (commentary on Hp. *Aph.*), which they assign to the late third or early fourth century (CPF 1.2¹⁸ 18 Hippocrates 24T, pp. 181-2). The ed. pr. had assigned the hand to the second century, G. Cavallo, in A. Blanchard (ed.), *Les Dédits du codex* (1989) 171, to the mid-third.

Only the left margin survives in fr. 1 | and the right in fr. 1 →. *Diple obelismis* is employed once at line beginning, at fr. 1 ↓ 5, followed by a short blank space. The *diple obelismis* is used comparably six times in P. Mil. Vogl. 15, always within the text and signalling a new question-heading. The use of the *diple obelismis* within the text in this way is rare and associated especially with wide columns: besides the codices P. Ryl. 530 (CPF 1.2¹⁸ 18 Hippocrates 24T, with comments on the use of the *diple* at 182), P. land. 83a (A. Wouters, *The Grammatical*

Papyrus from Graeco-Roman Egypt (1979) no. 10), MPPER NS I 34 (MP³ 149.2), and P. Ant. III 186 (CPF I.2* 14 Galen 2) fr. 2(b) 14, cf. the rolls PSI inv. 505 (c. 46 letters per line), edited by J. Landon and S. Matthaios, *ZPE* 154 (2005) 97–116, with remarks on the use of the *diple obliqua* at 99 and nn. 16 and 17, and IV 654 (c. 31 letters per line); cf. also the amulet P. Köln X 405. In such cases, it may have been considered wasteful, or less aesthetically pleasing, to begin a heading on a new line. Even in this instance in 5235, where the *diple obliqua* is used at the beginning of the line, the text begins only to its right rather than underneath it.

Attempts to place either fragment in relation to the other or to P. Mil. Vogl. 15 have proved fruitless (see fr. 1 ↓ 5 n.), and it is not clear how many leaves are represented.

The new fragments are most notable for the mention of the Methodist physician Thesalus of Tralles at fr. 2 → 1 (see n.).

Fr. 1 →

c. 27] . . . πε[
c. 27]ται η δια[
c. 27]αχέτω[
c. 27]αι αὐτοῦ[
5 c. 27]αν ἀμπε[-
λ c. 26] δέφυκ[
7 c. 26] , καὶ ταυ[

Fr. 1 ↓

ου μν. [
δταν ε[
του πα[
>νεύρα τ[
5 τ[
cυνε[
cυνο. [
]

Fr. 2 →

Θ]εσσα[
]εἰς τὸ αυ[
] . . . α. ρο. [

Fr. 2 ↓

]εἰν η τ[
]θμεν[
]ράζοντο[

Fr. 1 →

3 ἀχέτω[₃, or a compound such as δκα[₃αχέτω[₃. To judge by its use in comparable medical literature, this may point to a section devoted to the signs of the disease under discussion, and in particular some form of unrestrained behaviour perhaps associated with a mental disorder cf. e.g. *Arz.* 3.6.10 (CMG II 43.20, 23), on the signs of mania; *Paul. Aeg.* 3.6.1 (CMG D.K. 144.17), on the signs of phrenitis.

5–6 Mentions of the vine and vinegar mixed with water indicate that these lines formed part of a section on therapy. The therapeutic sections of P. Mil. Vogl. 15 → are found at 9–17 and 27–37.

Fr. 1 ↓

1 ου μν. [Unless this is a reference to muscles, the mention of nerves at 4 below might suggest the spinal cord, e.g. *voatα*[₁ου μνε[₁λοῖ]. Alternatively, if this line forms part of a section on therapy, the bone marrow of a certain animal may be referred to here, as e.g. *δλακ*[₁ου μνε[₁λοῖ], but there are some grounds for thinking that this section is unlikely to be concerned with the treatment of the disease, since material of this nature ought not to precede a discussion of its cause (see 4 n.).

3 τοῦ ἀδ[₃βου[₃?

4 νεῖρα. In P. Mil. Vogl. 15, references to anatomical features and physiological phenomena are generally found only in the sections devoted to aetiology (→ 4–8, 20–23, 1, 9–15; cf. esp. the reference to nerves in the *dour* on the cause of apoplexy ascribed to Asclepiades at → 23), and this is most likely the subject matter of 4. In that case, in view of the sequence of topics in P. Mil. Vogl. 15, the following question at 5 may concern the signs, differentiae, or indeed treatment of the condition under discussion. Acute and chronic diseases thought to affect the nervous system directly include apoplexy, paralysis, phrenitis, lethargy, etc.

5 +[. Some part of *vic* introducing the new question-heading: cf. e.g. P. Mil. Vogl. 15 → 18 (*τὴ δέτρω ἀνομηγία*), 20 (*τὴ αἰτία ἀνομηγίας*), 26 (*τὴν διαφέρει ἀνομηγία* . . .), ↓ 15 (*τὴν ἐξημεία ἐχθιδόσ*). The question-headings whose beginnings are lost in a lacuna in P. Mil. Vogl. 15 ↓ are those at 7 (*τὴ δέτρω λεχιδόσ*) and 9 (*τὴ αἰτία ἐχθιδόσ*), but it is not physically possible so to place the fragment that +[here gives the beginning of either of those questions: if it were placed at P. Mil. Vogl. 15 ↓ 9, there would only be room for about two letters between *του πα* and *τὴ δέτρω λεχιδόσ*; two lines before, while if it were placed at P. Mil. Vogl. 15 ↓ 7, *cυνο* [two lines lower down would occupy the space where the beginning of *τὴ αἰτία ἐχθιδόσ*; should fall. In any case, as suggested, the mention of 'nerves' in the preceding line may indicate an aetiology, and the term seems ill-suited to the context of either P. Mil. Vogl. 15 ↓ 6 or 8. If *νεῖρα* does indeed belong to a section on causes, then in view of the regularity of the sequence of topics in this and other medical catechisms on individual diseases (definition, cause, signs, treatment), a question on the definition or cause of the disease at fr. 1 ↓ 5 can be ruled out. Furthermore, the text on the other side at fr. 1 → 4–6 does not seem to correspond with what survives at P. Mil. Vogl. 15 → 8–12. These considerations strongly suggest that fr. 1 does not belong to the same leaf as the Milan fragment.

Fr. 2 →

1 Θ]εσσα[. There seems little doubt that we have here a mention of the Methodist physician Thesalus of Tralles (B. 54–68). A reference to Thesalus the son of Hippocrates does not seem likely, in particular since there is no sign that he made any impact in the doxographical tradition of medicine: he does not feature in the Anonymus Londinensis or the *Placita* tradition, whereas for example Polybus (in the later tradition Hippocrates' pupil) is referred to in both. On the other hand, several features of the papyrus text point to the Methodist. In P. Mil. Vogl. 15, the aetiological sections are represented by short doxographies, in which the Methodists as a sect are invoked certainly at ↓ 14, and possibly also at → 7. In what survives, a privileged status appears to be bestowed on the authority of the physician Asclepiades of Bithynia (*his* nos), whose theories were an important precursor of Methodism, and who taught its founder Thesalus of Naucratis. Furthermore, certain features of works on acute and chronic diseases, of which this papyrus furnishes another example, are associated by the fifth-century Methodist physician Caellius Aurelianus specifically with members of his own sect. He tells us, for example, that Thesimion was the first doctor to offer a separate, dedicated discussion (*principaliter*) of the treatment of chronic diseases (among which were counted the diseases sciatica and elephantiasis included in P. Mil. Vogl. 15), where previously Erasistratus and Asclepiades had discussed these variously in separate works (*Tard. Pass. praef.* 3 (CML VI.1 426.35–428.3)). Caellius also characterizes Thesimion as the only 'ancient' doctor to have described the treatment of elephantiasis, and Democritus as the only philosopher: if the book on *Elephantiasis* attributed to him is authentic (*Tard. Pass.* 4.1.4 (CML VI.1 776.17–18)). The chronological distinction between 'ancient' and 'more recent' doctors is notoriously difficult to pin down, however, and for Caellius the generation immediately following Thesimion's seems to have fallen into the latter category: thus at *Tard.*

Pms. 4.1.8-10 (CML VI.1 772.27-780.12). Caelius also describes the treatments which Themison's followers set down for elephantiasis. Thessalus of Thalles sits easily within such a context, and he can be connected with the subject matter of the papyrus by the fact that the two books of his treatise *On Regimen* were devoted to acute and chronic diseases respectively. The motivation for the citation here may be more difficult to determine. All doxographical material in P. Mil. Vogl. 15 is found in sections on the cause of the disease under discussion, but it is possible that he was cited here for his views on the signs or treatment of a disease.

A growing number of papyri provide evidence of Thessalus' varied impact in Roman Egypt. He is referred to by name in two other papyri: in a list of books at P. Vass. v. 23, together with his Methodist predecessor Themison at 26b; and in P. Horak 2, a title tag with the inscription *Θεσσαλῶ περι τοῦ ψευδαρῶν τοῦ εὐεργιστοῦ* ('Thessalus, *On Medical Interests Among the Elite*'). As the inventor of the therapeutic principle of the *diastina*, his influence can be traced also in MP³ 2373.01 (ed. I. Astorlini, in ead. (ed.), 'Specimina' per il Corpus dei Papiri Greci di Medicina (1977) 153-168). P. Golenischeff (cf. GMP II 13), LXXIV 4971, and 5233. It has also been suggested that his particular views lie behind the Methodist definition of *καούτης* preserved in *LI 3654* fr. 8 (see n.).

² Perhaps τὸ αἴτ[ε]ρ[ος].

Fr. 2 I

¹ A form of (-)τῶν perhaps suggests that this line comes from a section on therapy.

D. LEITH

5236. ON GANGRENE

5 I B.38/P(f)

2.4 x 6.3 cm

Second/third century

Plate I

Remains of the middle parts of twelve lines. There is a small scrap loosely attached to the bottom of the fragment with a few indeterminate traces, not transcribed below. The writing runs along the fibres, and the back is blank.

The hand is an example of the Severe Style, sloping to the right. The crossbar of κ is detached and slopes upwards; that of θ projects on both sides. The upper branch of κ has a downward-pointing hook at its tip. φ has a triangular loop, of which the right-hand side may be detached (5). Neighbouring letters often touch. Datable parallels include XLII 3005 (after 118/19) and LXIX 4736 (before 194); cf. in general L. Del Corso, *Aegyptus* 86 (2006) 81-106.

A supralinear ascending oblique is used in abbreviations for -ων, πρὸς, and καί, of which the first two are paralleled in P. Lond. Lit. 165 (Anon. Lond., MP³ 2339). The use of abbreviations may suggest that this is a scholar's copy.

The text seems to be concerned with gangrene (2), and specifically with its causes. It records the opinion of the physician Asclepiades of Bithynia (fl. c. 100 BC) on the aetiology of the condition under discussion. The wording is paralleled in the Asclepiadean aetiologies set out in P. Mil. Vogl. I 15 → 20-23 and I 12-14 (cf. 5235 above). Caelius Aurelianus records a number of similar Asclepiadean disease definitions in his *On Acute Diseases* and *On Chronic Diseases*, likely drawn from Asclepiades' original works (cf. e.g. *Cel. Pass.* 1 praef. 6; 2.13.89; 3.47.139; 3.19.188 (CML VI.1 24.17-26.2, 188.3-5, 376.6-8, 402.14-17)). According to

Asclepiades' theory, almost all diseases can be attributed to an obstruction (*ἔντροσις*) of invisible corpuscles (*ὄγκοι*) in the imperceptible pores (*πόροι*) of the body. Different diseases and symptoms are produced by differences in the location of the obstruction and in the relative sizes of the corpuscles and pores involved (cf. J. T. Vallance, *The Lost Theory of Asclepiades of Bithynia* (1990) 93-122). Pores (9) will have been mentioned in a reference to the location of the obstruction that produces the relevant condition.

It was not previously known that Asclepiades discussed gangrene (if indeed this is still the subject matter of lines 7ff.), but the fact is unsurprising, since he wrote a treatise *On Wounds* (Cass. *Pr.* 41.3 Garzya (p. 55) = 40 Ideler (i 157.33-4)), from which this report may ultimately be derived. Gangrene was defined as a potentially fatal necrosis of the skin especially around a wound, marked by severe discolouration of the flesh (cf. e.g. ps.-Gal. *Def. Med.* 186 (xix 449.3-7 K); Gal. *Tum. Pr. Nat.* 8, ii (vii 720.14-721.6, 726.4-8 K)).

], [], []
γαγγραινα []
κ]ατ' ἰδίαν π(ρὸς)φ[]
] τὸ πάθος ἐκ[]
5 δ]αφόρ(ων) αἰτ(ῶν) []
] ου ενεκετ[υκοῦ
Με]κλημιάδους []
τῶν λόγων θεωρητ(ῶν) ὄγκων []
] ε πόροις []
10] εἰπονταστ[]
] ν κ(αί) πνευσ[]
] εἰν φαρ[]
3 π' 5 φαρ' αἰτ' 8 ητ' 11 ε'

'... gangrene ... separately ... the affection ... different causes ... cohesive ... Asclepiades ... the corpuscles intelligible to reason ... pores ... and pnuma ...'

- 1], [] []. Feet only, the last perhaps the lower left-hand corner of a or λ.
- 2], [perhaps the left-hand side and turn-up of ε or ε, e.g. Ηστ in a definition.
- 3 κ]ατ' ἰδίαν may belong to a definition of the disease, preceding an account of its cause. WBH tentatively suggests that there may be a contrast between a passage addressed to a group and a passage addressed 'separately' to (e.g.) Philip.
π(ρὸς)φ[ε]: π(ρὸς)φ[ε] or π(ρὸς)φ[ε], e.g. π(ρὸς)φ[ε]-, of a 'fresh' wound.
- 4-5] τὸ πάθος ἐκ[] δ]αφόρ(ων) αἰτ(ῶν) []. Cf. perhaps Alex. Trall. *Therap.* 12 (ii 501.9-10 P) τὸ τὴν ποδάρκην πάθος ... ἐκ πολλῶν καὶ διαφόρων αἰτῶν ἔχει τὴν εὐστροφίαν.

6 | οὐκ ε.ε.g. | τοῦ, αλ|τ|f|ου.
 κωδικε|κωδ. Cf. P. Mil. Vogl. I 15 → 20–21 τὴς αἰνῆ ἀπο|θη|σῆ|ς; κατ' ἄ|κ|ε|λλή|μη|δὴ|ρη| συ|νε|κ|ε|ῖ|ς| ἐ|στ|ε|ι|ν
 ἐπ|λ. συ|νε|κ|ε|ῖ|ς| is probably not Asclepiades' own term: cf. ZPE 189 (2014) 259.

7 ἄ|κ|ε|λλή|μη|δὴ|ρη|ς |. The last trace is the base of the lower arc of a circle, e.g. c.

8 τῶν λόγων θεωρητῶν ὄγκουσι. Asclepiades' ὄγκουσι are regularly described as λόγων θεωρητῶν in our sources (cf. e.g. S. E. M. 3.5 Gal. MM 2.4 (x 101.17 K.); Cael. Aur. Cael. Pns. 1.14.105 (CML V.1.1 80.22–3)). The noun governing the genitive will have been ἐνστατικῆ, the pathological 'blockade' or 'impaction' of the ὄγκουι that was central to Asclepiades' aetiology of disease (see introd.: cf. P. Mil. Vogl. 1.5 13) |λόγων θεωρητῶν ὄγκουσι ἐστ| (ε.ε.ε.).

9 | c. e.g. | ε.ε. ἐν τοῖς τῆς καρδῆς πόροις, ἐν τοῖς πόροις |κωδ| τῆν εἰρήνην, etc.

10 |ε|στ|ε|ρ|α|κ|ε|ῖ|ς| e.g. | εἰρήνην, | εἰρήνην. |y is not excluded, and a participle of εἰρήνη would suit a discussion of gangrene or another form of necrosis, but it is unclear what would be causing the putrefaction.

11–13 |y κ(α) πνεύμα | |ε|y φεγγ|. Perhaps a reference to the matter that flows through the human body, ε.ε. ὄγκου|ς| κ(α) πνεύμα|ς|, then as 12 a reference to the impeded flow of such matter as a cause of gangrene, with ἡ κωδ| τῶν φέρον| in some form. Cf. e.g. Gal. Tann. Pr. Nat. 8 (vii 720.18–721.3 K.) ἐπιπλοὶ γὰρ ἰσχυροῦς φραγῆ| ... τὰ τε στέματα τῶν ὀργάνων οἱ τε πόροι πάντες οἱ κατὰ τὸ δόγμα τῆς κατὰ φύσιν ἀποστερολήθων διαπορῆς, τὰ ὄγκου κέλευματά τε κώματα νεκρωτῶν βλάβει; MMG 2.11 (xi 136.7–9 K.) τοῖς κατὰ τὸ πάχος μόνον αἵματος ἐφραγμένον, δι' ὃ καὶ ἡ νέκρωσις γίνεται, μὴ δυναμένων τῶν ἄρτηρῶν ὑπὸ στενοχωρίας διαστέλλεσθαι. But such an explanation is too generic to be attributed confidently to Asclepiades. These lines may describe an opposing view on the cause of gangrene. Otherwise, the point may be that the obstruction of the ὄγκουι is ultimately responsible for the impeded movement of the liquids and pneuma in the body. For bodily liquids and pneuma as composed of ὄγκουι, cf. e.g. S. E. M. 3.5 ὅτι πάντων ὄγκουι μέρη καὶ πνεύματος ἐκ λόγων θεωρητῶν ὄγκουι συνάρακται; Cael. Aur. Cael. Pns. 1.15.124 (CML V.1.1 90.33–92.2) ἡ εἰσιόν σαρκαῖν μαινοῦν σαρκακλινοῦν ματῆρι ... ἠφίστανται εἰ φρονον, quae ad dicitur paronon sunt sarrakliνον ματῆρι.

Asclepiades is said to have held that light or soluble fevers (distinguished from the *vehementes*) were due to a disturbance of pneuma and liquids in the body, rather than to the ἐνστατικῆ or obstruction of the ὄγκουι (cf. Cael. Aur. Cael. Pns. 1.1 pref. 8, 1.14.107 (CML V.1.1 26.15–18, 82.10–13)), but a reference to these conditions would not suit the context. (Vallance, *Last Theory* 118, understands 'diseases' with *solubiles* in the second passage, but the contrast is between two kinds of fevers, as in the first; cf. *vñn* πρὸς τῇ ὑπεκλίσει πυρετῶν in the corresponding passage at Sor. *Gyn.* 3.4 (iii 5.82–2 BGM).)

D. LEITH

5237. MEDICAL TREATISE

45 B.54/C(1)a

F. 1.27 × 21.5 cm

Second century
Plate VII

Two fragments preserving parts of five consecutive columns; the small fl. 2 is placed at col. v 16ff. on the basis of the fibres. The writing runs along the fibres, and the back is blank. There is a *kollēsis* running through col. iii. The upper margin survives to a depth of 2.5 cm. The column width is c. 6.5 cm, and the intercolumnium is c. 0.9 cm wide at its narrowest. A line holds 18–23 letters; the average is c. 20–21.

The text is written in a neat semi-cursive hand, leaning to the right. ρ often has a short horizontal projecting from the base of its loop; υ is y-shaped; μ is deep and rounded; the cross-bar of ε is often detached, and may be written with the cap in a single movement; c may have

an extended cap. Cf. e.g. M. *Chr.* 306 (PGB 25) of 155.

Paragraphus is used at iii 17 (with high stop) and iv 16 (no doubt originally with high stop), and forked paragraphus with high stop at iii 4. Line fillers (→) are used at iii 8 and iv 11, and one should perhaps be restored at iii 23.

There is no sign that the text has undergone correction. There are minor omissions at iv 5 and 22, and apparently a more substantial one at iv 10–11. Iota adscript is always written. εἰ may be written for long ι (iii 15, 18, iv 4).

The content of the papyrus is principally therapeutic. The author is concerned above all with hot and cold as agents in his pathology and therapeutics; there is no reference to the action of dryness or moistness, or any other pair of opposites, in what remains, nor any clear indication that the author subscribed to any kind of humoral theory. Rather, hot and cold are solely responsible for all pathological phenomena mentioned, and naturally provide the means of counteracting them, with heat in particular relaxing excessively constricted flesh (cf. esp. iii 9–22).

A striking feature of the author's pathological vocabulary is his repeated juxtaposition of the terms *εἰσπνοεῖς* ('impaction') and *ἀποθλάσις* ('squeezing out, expulsion') (iii 17–19 n.). The collocation of the terms *εἰσπνοεῖς* and *θλάσις* in other medical works is largely restricted to descriptions of interferences to the normal action of the pulse, through obstruction caused by a surfeit of blood within the vessel, or its being squeezed from outside (cf. e.g. Gal. *Puls.* 12 (viii 486.5–6 K.); *Caus. Puls.* 1, 2, 7, 12 (ix 57.16, 64.10–11, 167.15–16, 181.10–11 K.)). In the papyrus, the terms are used of a condition that affects 'the fine parts of the flesh' (iv 5–6) and is relieved by the relaxing effect of heat. It may be a general constriction or increased density of the flesh, which apparently involves a 'squeezing out' (*ἀποθλάσις*) of material from the affected area.

The author is concerned to emphasize that the underlying 'constitutions of affections' (iii 10–11, iv 8–9) vary by nature, and that although some people use either only hot or only cold drinks, in fact choice should be governed by the kind of constitution that a given affection possesses (cf. esp. col. iii). Although fevers are referred to repeatedly in what survives (ii 4–5, iv 1, 19–21), they may not be the primary subject matter of the treatise, but a necessary part of a discussion of the treatment of diseases in general that are caused by the action of heat or cold. There is also repeated reference to conditions affecting the oesophagus (ii 7–8, 12–13, iv 21–2), but again these are apparently to be taken as examples of the more general types of condition under consideration.

Col. i	Col. ii	Col. iii
	] στερον[	συν [. . .] νο [. . .] [. . .] αφορωσ
	] του[. . .] ε	διατ[. . .] ντασ [. . .] ατακαι
	] . . . [ . . . ] ε	[. . .] μβαλ[. . .] τατρ[. . .]
5	] αυου ε	> το [. . .] ρονιατρευει
	] οικ ιρωι	ε . . . ιουχρηστικενστιν
	] τους	ε . . . επιπατωνψυχρου
	] αχικαις	χ . . . [. . .] ωιποματωσ
	] . . . [ . . . ] εσ[. . .] μν	π . . . καθ [. . .] μωιντεςεσι>
	. . .] ναιδε ηπεριμ ν . . .	π . . . ντ ν [. . .] ρωνταιαλλπει
10	. . .] λληναες . . . χ . . . ιαν[	] αφ[. . .] . . .] ωαιτωνπαθων
	. . .] σωσιναιδυναμεις	[. . .] . . . [. . .] ιπα[. . .] αγκη
	. . .] ασθενεια . . . ηπ ριστο	. . .] ιωνμε [. . .] ρασκευ
	. . . α οηπεμφυχουσα [ . . . ] [	. . . ] ερμ[. . .] [. . .] . . .] ερε
	ασηθουλιωιδε . . . [. . .] ε	σ οσενιωνδαντ[. . .] ψυ
15	επιφερουσκανταυθατ[. . .]	χρον . . . ιαφορουσκεινητσεις
	τροφηπεριτιθεναιχ . . .	[. . .] [. . .] εσειεπιφερ ντα
	παρα λησιω εντηκατ ρ	τ . . . ισωμασινειμενον [. . .] φη
	. . . ησταρακιηπολλη	νωσικηραποθλειψιστω
	] . . . ε	σωματωνενιτροθερμον
20	] εσσα	προκρ . . . εουαντεςκαι
	] . . . ον	χαλασματοςδεομένηστης
	] οντες	ωσαθ[. . .] . . .] εν
	] ερμαι	[. . .] κ . . . θενενταικαμα [
	] και[	ω[. . .] . . .] ν . . . ο . ημ . [
25	] . . . ] α	[. . .] [. . .] [. . .] πωιδυνο . . . [

Col. ii	Col. iii
	] στερον[
	] του[. . .] ε
	] . . . [ . . . ] ε
5	] του πυρε-
	] τωι καιρωι
	] . . . τοις
	εστομαχικαις
	[. . .] [. . .] διαθ[. . .] ε[. . .] εν
	. . .] ναι δε μη περιμενο-
10	. . .] πολλην ανενυ αχρι αν
	. . .] εις ανεν αι δυναμεις
	. . .] ασθενεια . . . η περι ετο-
	μαχον περιψυχουσα [. . .] [
	ωσ η βουλιωιδεις . . . [. . .] ε
15	επιφερουσα κενταυθα τ[η]ν
	τροφην περιτιθεναι χρη
	παρπηλσιωσ εν τηι καταρ-
	χηι της παρακιησ πολλης
	θερμα[. . .] ε[. . .] υπομνοστις
20	εν τοι[ς σω]μασιν φυλαττο-
	μεν [. . .] . . .] της ανεσε-
	ωσ αθ[. . .]] εν
	ου μη[
	των [
25	. . .] τ[

συν [. . .] νο [. . .] [. . .] διαφόρουσ
 διατ[. . .] εν τὰ σώματα και
 τ [. . .] μβάλλεται πρότε
 το [. . .] ρον ιατρευειν . ει-
 δεναι οὐν χρη̄στι ἐνεστιν
 μὲν ἐπὶ πάντων ψυχρῶι
 χρε̄σθα[ι] τῶι πόματι, ὡ-
 περ και θε[ρ]μῶι τινες ἐπὶ
 πάντων [χ]ρῶνται, ἀλλ' ἐπεὶ
 δ[ιαφ]έρου[σιν] αὶ τῶν παθῶν
 [. . .] [. . .] [. . .] αἰ, πᾶ[σα] ἀν[ά]γκη
 πρὸς ἐνίαν μὲν [ἀ]ρασκευ-
 ῆν τὸ θερμόν[τι] [πρὸς] φέρε-
 θρα, πρὸς ἐνίαν δ' αὖ τ[ὸ] ψυ-
 χρῶν, διαφόρουσ κενήσκει
 ἡ [μ[ε]τ[ε]ρα]θέσεισ ἐπιφέροντα
 τοῖς σώμασιν . εἰ μὲν οὐν [ε]σθ[ή]-
 νωσις ἡ ἀπόθλεισις τῶν
 σωμάτων εἴη, τὸ θερμὸν
 προκρίτεον, ἀνέσεισ και
 χαλασματος δεομένησ τῆσ
 σαρκὸσ ὅθεν ἐν ταῖς ἀκμαί[ε]
 τῶ[ν] . . .]ων ῥημά[ε]
 τ[ω]ν [. . .] ἐπωιδυνο . [. . .]

Col. iv	Col. v
η περιψηξωσπιυρετωσ	κριτ. [
σινεναπασ . γαρταιστω	θωσ. [
ανται διαθεσενσφνω	. ο. [
σιστωσκακαποβλεψις	αντο[
5 ευρικεταικαταλεπτατη	5 μασια[
σαρκοσασαδδ . ριωσε	ονοσα[
χωσιγηπαρασ . ενειαν	[.] . [
τανστωματωνηδιατην	το [
τωνπαθωνκατασκευην	τρεις [
10 εμφανεχ . θαι . αστων	10 μηγε . [
ψυχονταν . οσαφα . θερ>	χρο . [
μωιχρηστεονκ . [.] . πειδαν	θε . [
ιδρωτεσεκκρι . [. . .] . ε . [[
μενοιοδοτου[. . .] . κ . .	[
15 αλλωσσυμφε . [. . .] . σ .	15 [
τηρδιαθεσιν[	φ . [
θερμιονμενου . ε . [	τα . [.] δ . [
τοιουτωναριστηχ . . . [. .] .	εμε[.] ουν[
στανθερμιοικαι . . . λει	20 παρακελε[
ποντεσετιδεκαουσδεικ	βρωσπε . [
ο[] πυρετωσικωνηρ[.] υ . ατι	κρονουτ . [
ηταιστωμαχοσχητρο . ηι	[
μβαν . καχεκτικ . [. .] υ	[. . .] . [
[.] . [.] .	

Col. i
 18] . , indeterminate traces 21] . , foot of gently descending diagonal, slightly curved, as distance from next letter; long vertical extending below notional lower line, followed by disjointed trace above and to right, most like ρ 25] . , steeply descending diagonal at mid-height

Col. ii
 1] . , traces on the line and at letter-top level 2] . , upright 3] [trace at mid-height; diagonal descending to right followed closely by vertical, υ rather than α or αι; lower portion of oval letter with trace of top, wide as θ rather than ο; two low dots 4] . , low narrow arc close to ε; base of ε 4] . , crossbar touching α at top (γ>) 5] . , foot of upright extending below the line 6] . , tops of three strokes, the first belonging to a narrow oval letter, the second and third perhaps representing υ 7] . , steep diagonal

Col. iv	Col. v
η περιψηξωσ οί πυρετοί δω-	κριτ. [
ων εν άπασιν γάρ ταις τοι-	θωσ. [
αταισ διαθεσενσφνωσ	. ο. [
εις τις οδσκα και άποβλεψις	αντο[
5 ευρικεταικαταλεπτατησ	5 μασια[
σαρκωσ . σταν δε δυσριγωσ ε-	ονοσα[
χωσιν η παρ' άθενειαν	[.] . [
των στοματων η δια την	το [
των παθων κατασκευην,	τρεις [
10 ει μη ανεχεσθαι τασ των	10 μηγε . [
ψυχωντων προσαφασ, θερ-	χρο . [
μων χρηστεον κα[] επειδαν	θε . [
ιδρωτες εκκριθ[ωσ] . ελ [[
μεν οιοδοτου[. . .] . και	[
15 άλλωσ συμφερ[. . .] . σ .	15 [
την διαθεσιν [	φ . [
θερμοσ μεν ουν ε . [	τα . [.] δ . [
τοιουτων αριστηχ . . . [. .] .	εμε[.] ουν[
σταν δε θερμιοι και διαλει-	20 παρακελε[υ
ποντες ετι δε καουσδεικ	βρωσπε . [
ο[] πυρετοί δωων η β[ε]υματι-	κρον ουτ . [
ζηται (δ) στομαχοσ η τροφηη	[. . .] . [
σ]υμβαίνη καχεκτικ . [. .] υ	[. . .] . [
[.] . [.] .	

with peak high in line, with tail touching α at mid-height 8] . [, low traces] . , part of slightly curving upright, αs of ε, followed by vertical 9 . υ, damaged trace touching η just below mid-height in space suiting a broad letter η . , lower left-hand arc of a circle η . , high trace, short horizontal stroke, or edge of upper arc of oval letter; top of diagonal with small hook to left, followed by top of vertical, most like υ, but υ perhaps not excluded; not α 10] . , upper arc of narrow oval letter ε . . . , of first two letters, feet of three verticals, the first with a small hook to right; last trace, perhaps lower left-hand corner of α χ . , top of curve high in line, with a trace below 11] . , upper and lower arc (ε or ε); foot of upright 12 α . . . , horizontal high in line (γ>), then a vertical touching and projecting above it; high trace π . , upper half of upright, curving to right at top 13 α . , oblique ascending from left to right; just below mid-height; beginning of oblique ascending from left to right slightly below the line [] high trace] . [, base of oval letter; beginning of oblique ascending from left to right 14 [, top of upright; upper

arc of oval letter; top of upright, with trace of diagonal descending to right (a2); upper part of stroke curving to right and touching upright at top; tops of two diagonals meeting high in line 25], upright with small finial at top, consistent with ν 16 , feet of two verticals 17 λ , trace on line ω , low arc (ea) τ , junction of two diagonals high in line 18 , ϵ , beginning of diagonal rising from left to right low in line; two traces on the line; high crossbar η , low arc touching γ (c) 19 , edge of left-hand arc 20 , foot of upright leaning to right τ , damaged trace, apparently upright 21], left-hand arc 22 , two high specks; high crossbar 24 γ , right-hand end of a high crossbar, touching ω], high trace 25 , high traces

Col. iii

1], high trace], right-hand arc, e.g. σ],], beginning of diagonal rising from left to right, or foot of right-leaning upright; low trace 2], ν , crossbar touching upright just below top, most like ϵ], left-hand side of oval letter 3 ,], trace on the line; perhaps top of η high trace 1, μ , high trace 7 γ , right-hand end of horizontal at mid-height 1], high trace 4 ,], lower part of σ or ϵ , then upright with right-facing hook at foot 5 γ , trace on line , on damaged surface, confused traces including short high oblique descending from right to left 6 ϵ , foot of rising diagonal just below line, followed by low trace; lower part of vertical with blob at foot 7 ,], rubbed traces], lower part of upright 8 μ , upper and lower parts of back of ϵ or σ ; high trace], high trace 9 μ , short horizontal touching ν at mid-height τ , top of upright on the right-hand side of a space sitting a wide letter to], α , indeterminate trace], ν , top right of σ or perhaps τ touching α],],],], traces on damaged surface], ν , descending oblique joined by ascending oblique just above mid-height ($\alpha\lambda$) 12], low trace], trace of upright 13], upper arc of narrow oval letter],], low traces], upper part of vertical extending high above the line ($\phi\theta$) 14 ,], low traces 15 , lower left-hand corner of α or δ 16 ,], foot of vertical, followed by a small hook on the line, touching a further trace η , suitable], foot of upright], high trace ρ , upper part of narrow oval letter 17 τ , high trace], feet of two uprights 18 , trace at mid-height 20 , two verticals 22 κ , indeterminate trace; junction of two obliques high in line; small loop high in line ϵ , indeterminate traces α , low trace 23 ω , gently descending horizontal touching ω high in line ($\epsilon\tau$)], trace at mid-height σ , η or ν ; lower part of narrow oval letter; upper and lower parts of back of ϵ or σ],], traces on broken fibres 24],], traces on damaged surface], μ , indeterminate traces σ ,], high traces

Col. iv

2 ,], foot of vertical; indeterminate traces 5 γ , high traces 6 ,], high and low traces; right end of high gently descending horizontal 7 , lower arc of very narrow oval letter 10 ,], top and bottom of ϵ or σ ; stroke touching θ above mid-height 11 , left top of high crossbar 11 ,], foot of upright; lower part of descender α , stroke touching tail of α 12], trace at mid-height 1], upper left-hand arc of circle 13 The second α written on a ρ], back of oval letter], ϵ , high traces; upper parts of λ (the second α upright) or μ 14], high crossbar touching ϵ or σ κ ,], triangular letter with tail touching upright (as or λ) 15], upright descending below the line], ϵ , high traces; high hook, $\eta\lambda$ 17 λ , top and bottom of forward-sloping stroke], low trace], low traces], upper and lower parts of ϵ or σ 19 ,], traces on damaged surface 21 μ , top of upright towards right of space sitting a wide letter 22 η , foot of ascending oblique, high trace above σ , trace at mid-height 23], high trace ν , damaged traces including horizontal at mid-height], vertical followed by a further trace], ν , high traces 24 Traces on damaged surface

Col. v

1], back of oval letter 2], vertical 3 ,], lower end of descender with trace at letter-top end on the right], low trace 7], foot of descender hooked to left ($\rho\tau$)],], traces at letter-top and below 8 ,], lower parts 9 ϵ ,], base of ϵ or σ ; foot of vertical 10 ,], high crossbar

(π); top of oblique descending steeply from left to right 11 ρ , low trace of vertical], high trace (μ) 12], high trace 16], low trace 17], foot of upright hooked to left 8], low trace 18], left-hand arc, with a trace to the right touching ν 20 ,], ϵ or perhaps ρ ; high and low traces 21], two high traces 23],], indeterminate trace

'... fever ... the stage ... conditions of the oesophagus (or stomach) (?), but without waiting to (give) much relaxation until the faculties are ... (and (until) there is a certain (?) weakness which either causes chilling ... around the oesophagus or which brings (attacks (?) characterized by ravenous hunger, and it is necessary to prescribe food at this time in the same way, in the beginning of the abatement when there is a lot of heat remaining in the bodies ... preserve ... relaxation ...

'... (dispose (?) the bodies differently and ... (join together (?) in order to (?) cure (each of them (?)). Therefore it is necessary to know that it is possible to use in all cases a cold drink, just as some people use in all cases a hot one, but since the (constitutions) of the affections differ, it follows of necessity that hot contributes something to the cure of some, while cold (contributes something) to (the) cure) of others, since they bring different changes or alterations to the bodies. Therefore, if there should be impaction and squeezing out of the bodies, hot is to be preferred, since the flesh requires relaxation and slackening. For this reason in the crises of (such (?)) diseases ... painful ...

'... the fevers are ... or chilling. For in all such conditions, a certain impaction and squeezing out is found in the fine parts of the flesh. But when they are sensitive to cold, either from weakness of the openings or because of the constitution of the affections, if (they are) not (able (?) to) endure the touch of chilling things, one must use hot. And when sweats are secreted, ... prescribe wine ... otherwise ... the condition ... Hot ... such ... best. But when the fevers are summer (fevers), remittent, and burning, or the oesophagus is in flux, or from food it happens ... cachectic ...'

Col. i

20 τ εσα[ρ-]
23-4 θηρια[ρ-].

Col. ii

1] $\epsilon\tau\epsilon\sigma\omega\tau$:] $\delta\epsilon\tau\epsilon\rho\omega$], $\delta\epsilon\tau\epsilon\rho\omega$],
2 $\delta\alpha\theta\lambda\epsilon$: ϵ : $\tau\epsilon\mu$ suggested by $\epsilon\tau\omega\lambda\mu\alpha\chi\alpha\iota\varsigma$ (?), which regularly qualifies $\delta\alpha\theta\lambda\epsilon$ in medical literature; cf. also ν 3. Perhaps $\epsilon\tau\omega\lambda\mu\alpha\chi\alpha\iota\varsigma$ [$\tau\eta$ κοιλια]καϊς $\delta\alpha\theta\lambda\epsilon$: ϵ : $\tau\epsilon\mu$

aff. 'Perhaps e.g. (ἐν τοῦτον) τὰ κενὰ [τρέφω χρόν] τοῦ [... ἐπὶ ταῖς ἐστρωμαχιαῖς] ... $\delta\alpha\theta\lambda\epsilon$: ϵ : $\tau\epsilon\mu$, [φανη]νὸν δὲ μὴ περιμενε[τα]ς πηλοῦ ἀνεμ, ἄξει δὲ [ἀνα]λεῖ $\delta\alpha\theta\lambda\epsilon$ αἰα ἀδιναε. [ἐάν θ'] ἀθένηα η], ἢ περὶ ἐστρωμαχῶν τελευτῶν ἡ βοημιωδῆς ὀρε[τρ]εῖς] ἐπιφροσ, κἀναθῆα τῆ]ν] τροφῆν περιμενῶν χρό] παρατηροῦν, ἐν τῇ καταρχῇ τῆς παραμικρῆς πολλῆς] θερμ[ε]ίας ὀνομαστέην] ἐν τοῖς σάβμασι, "at this stage, and without waiting for great remission to appear, one must feed the ... in stomach (?) conditions, until the capacities are healthy, and if there is a weakness that either chills completely around the stomach (?) or brings ravenous desires, in this case too one should prescribe food similarly, with much heat remaining in bodies at the beginning of the abatement". For the question whether one should wait for complete $\delta\alpha\theta\lambda\epsilon$ before proceeding with τροφή, cf. Herod. Med. ap. Orib. Coll. Med. 6.30.15 (CMG VLI.1 175.37-176.1) αἰ μὲν παρὲν οὐ τῆς ἀνεμῶν καιρῶν, μετὰ τὴν ἀπὸ τοῦ βοηθῆματος παραχρῆ καὶ τὴν ἀποκατάστασι τοῦ βρασμοῦ θροσῶν: ἐπὶ δὲ τῶν μηδὲν ἔξανητων, περιμενόντων τὴν παντελεῖ ἀνεμῆ θροσῶν; also 6.30.21 (CMG VLI.1 176.23-4) τοῖς τῆς ἀνεμῶν περιμενόντασ χρόνους εἰ τῆ τῶν λοιπῶν προαγωγῆν; 7.81 (CMG VLI.1 209.21-4) εἰ μόντοι μηδὲν ἔξωθεν ἀπέχου, περιμενόντων τοῦ τῆς ἀνεμῶν καιροῦ, καὶ μακρῶν μὲν ὄντων τῶν διαλεμμάτων ἐν τῇ παντελεῖ φλεβοπηγῆτων ἀνεμῶν κτλ.' (WBH). For another interpretation, see the notes below.

9 ...] $\mu\alpha$. Perhaps $\delta\alpha\theta\lambda\epsilon$: ϵ : $\tau\epsilon\mu$ cf. e.g. Aët. 6.10 (CMG VIII.1 151.17-18) διὰ τὴν χρῆσιν ἀνεμῶν δίδουσι τῆ φύσει (but cf. also 9ff. n.). At iii 20-21, ἀνεμῶν is found accompanied by its near-synonym $\chi\lambda\epsilon\mu\alpha$, used of the

21-2 $\beta\epsilon\lambda\upsilon\mu\alpha\tau\acute{\eta}\tau\eta\sigma\alpha\iota$ (5) $\epsilon\tau\acute{\rho}\alpha\gamma\omicron\varsigma$. According to Caelius Aurelianus, *Tard. Pnt.* 3.2.14 (CML VI. 686.19-21), flux of the oesophagus, *rheumatismus stomachi*, was discussed by Themison of Laodicea (fl. 1 BC) in book 1 of his *Chronia Diataxa*. Caelius (ibid. 3.2.18-19, 28 (CML VI.1 688.29-690.7, 694.23-5)) characterizes such a flux by the presence of excessive saliva in the mouth, and sometimes copious vomiting and fainting. The remedies that he prescribes for it are primarily cooling (ibid. 3.2.27-8 (CML VI.1 694.12-23)); the patient should lie in a moderately cool room, be sponged with cold water, and be given aromatics which have a cooling effect. Caelius' discussion of the disease is certainly conditioned by Methodist doctrine, but these features of the affection are in keeping with the types of fever mentioned immediately before, and suggest that the papyrus text has moved on to a new section dealing with diseases that are to be treated by cold.

Col. v

- 11 $\theta\epsilon\epsilon\mu-$?
18 $\delta\mu\epsilon\tau\epsilon\upsilon\sigma\upsilon?$
19-20 Most likely $\delta\delta\beta\omicron\upsilon\varsigma$.

D. LEITH

5238. MEDICAL QUESTIONNAIRE

57/23(a)

10.5 x 19.5 cm

Second/third century
Ptoic VI

A column of 40 lines. The upper margin is 0.7 cm high and the lower margin 3.4 cm high, and these may be their original heights. The column height is c. 15.5 cm. The left-hand edge of the fragment runs along the edge of the column at the top, and the line ends are missing. The writing runs along the fibres. The back is blank.

The text is copied in a small, generally upright, somewhat crude round hand, with a thick pen. The loop of a may be pointed or rounded, sometimes with an open top. The cap and crossbar of ϵ are made in a single curved movement, and the left-hand side and base often made in another curved movement, with a clear gap in the middle; or the left-hand side and base may be reduced to an upright. κ is U-shaped. υ often has a long tail, with right-hand branch and upright made in a single movement. ϵ is often joined to the next letter; cf. also e.g. $\sigma\rho$ at 37. There is some resemblance to the hand of P. Berol. 7094 v. (BKT III 5-9), assigned to the second/third century; cf. also the more formal hand of I 9 + XXXIV 2687, assigned to the third century.

Question-headings may be separated from the preceding text by a long blank space (4, 12-13, 36 (?)) or, if the available space is limited, begin on a new line in *eisthesis* (2, 6-7, 17, 22 (?)). Where a question extends onto a second line, the second line is aligned with the beginning of the question. As WBH notes, although the second preserved question (6-7) extends onto a second line, the space to its left is only as high as that to the left of the single-line question that precedes (2), perhaps due to an effort to conserve space. There are numerous itacistic spellings, and no lection signs. The standard rules of line division are not observed (cf. 10-11 $\epsilon\tau\mu\phi\alpha\kappa\upsilon$).

The content is principally therapeutic (see esp. 12-16, 22-40, and perhaps 1-5) and prognostic (6-12), with an emphasis on fevers and certain symptoms associated with them. The text can be divided into three main sections. At 6-16, there is a focus on chilling ($\sigma\epsilon\pi\acute{\rho}\theta\upsilon\mu\epsilon\iota\varsigma$ and shivering ($\acute{\alpha}\nu\theta\omicron\varsigma$), in particular their prognostic significance (6-12) and their treatment (12-16). This is followed by a longer section devoted to fevers generally, and especially their treatment (17-40). The precise subject matter of the first section (1-5) is unclear.

There are several references to the stages of an illness: beginning ($\acute{\alpha}\rho\chi\eta$, 37), increase ($\epsilon\pi\acute{\iota}\theta\omicron\upsilon\kappa\iota\varsigma$, 1, 39), peak ($\acute{\alpha}\kappa\mu\eta$, 3, 40), and decline or abatement ($\sigma\tau\alpha\sigma\eta\mu\eta$, 3 (?), 25 (?)). The distinctions, and the terminology, are standard in the Roman period (cf. e.g. 5233 ii 2-3 n.), and found elsewhere in papyri, e.g. MP³ 2373.01 (40 n.), BKT X 21. There are also references to the patient being in a stable condition ($\acute{\alpha}\sigma\phi\acute{\alpha}\lambda\epsilon\iota\alpha$, 3), and to a phase of recovery ($\tau\omicron\iota\varsigma$ $\acute{\alpha}\nu\alpha\lambda\mu\beta\alpha\sigma\iota\sigma\mu\acute{\epsilon}\nu\omicron\iota\varsigma$, 5). There are some indications of Methodist influence in the discussion of fevers (cf. 20 n.).

For medical papyri in question-and-answer format, cf. 5235, 5239, 5241, LXXIV 4972 introd.; D. Leith, in L. Taub, A. Doody (edd.), *Authorial Voices in Greco-Roman Technical Writing* (2009) 107-23.

τοῖς ἐν ἐπιπέδῳσιν αὐτῆς ῥιζῶν
 τίςιν δὲ ἦ . . . ῥῆ;
 τοῖς ἐν ἀσφαλῶν, ἀμῶν καὶ ἀρακαμῶν
 θεῖα καὶ πικρῶν. *** τίςιν δὲ [. . .]
 5 τοῖς ἀναλαμβανόμενοις οὐκείως [. . .]
 πότερον χαλεπότερον περιέμβυξι
 ἢ βέγιος;
 περιέμβυξι μὲν αἰσθησέως
 βέγιος συνβαίνει τοῖς ἀσφαλῶν [ἔχουσι
 10 δὶχα ἐσθέρως, ἢ δὲ περιέμβυξι
 μῶφιαν παρέχουσα προσηύξει [ἴσται
 ὠν πυρετῶν. *** τὸ βέγιος πῶ[. . .]
 περιέμβυξ;
] . . . [. . .] [. . .] τα τὰ ψυχρῶ
 15 ρουτῶ ὁσὸν ὀθ[σ]νίσις ἢ ἑματίσις [. . .]
 ἦ καὶ πυρῶ. [. . .] ρηξ[. . .] . . .] ἐρετι [. . .]
 τ[. . .] ἐστὼν [. . .] τῆς;
 ἐπ[. . .] τεταμένῃ θερμῇ ἢ θερμασίᾳ κ[. . .]
 [. . .] . . .] οὐ ἀπο[. . .] ἐλ[. . .] . . .] ὁμότη τ[. . .]
 20 [. . .] . . .] τῶν [. . .] [. . .] . . .] . . .] . . .] ἐστέρη[μ]εν
 [. . .] . . .] . . .] . . .] . . .] . . .] ἐρεγα[. . .]
 [. . .] . . .] . . .] . . .] . . .] ἐρεγα[. . .]
 πῶς δὲ θεραπ[. . .] εἶναι τοὺς [. . .]
 α. 10] καὶ τὴν πυρετὸν ἐπι[. . .]
 β] βρεγμένα ὑδραία [. . .]
 25] ὑὸν θερμὸν ἐν τῇ παρακαμῶ
] ἐπέσμα θερμὸν κα[. . .]
] σερμα . . . ἐὰν δὲ δυστομο[. . .] ῥῆ
] πείνειν διαμλεῖ ὕδωρ δι[. . .]
] . . .] ἢ διὰ εὐφόγων δοκεῖ [. . .]
 30] . . .] ὑδραία ἑμῶν ἀναχά[. . .] α
] μένων δὲ τῶν πόρων ἢ κατ[. . .]
] . . .] ἐὰν δὲ βούδει ἐπιγέν[. . .] ἴσται
] . . .] . . .] ἰελλόντα μὲν ἐπιθε[. . .]
] ὀθόνον διὰ ψυχρῶ ὕδατος ἠψ[. . .]
 35] . . .] α λε[σ]τριβμένα διὰ κλυσι[. . .]
] πῶς δὲ θεραπειν τοὺς κα[ύ]ουσιν;
] ἐν ἀρχῇ μὲν τῆς νόσου τὸν α[. . .]
] παραρτημῶν ἐπιβροχ[. . .] εἴλαιον [. . .]
] ῥῆσιν καθαροῦ ἢ ἐπιπέδῳσιν δὲ [. . .]
 40 φλεβ[σ]τομαίᾳ ἐν ἀκμῇ δὲ καὶ ἤ[. . .]

1 l. ἀσθέως ἢ apparently written over ο 4 l. κοιλίας 6 χ written over ε 1 χαλεπότερον
 7, 9, 12 l. βέγιος 9 l. συμβαίνει 10 l. αἰσθησέως 15 l. πορτα 27 ἐρετι e made out of a
 28 l. πύων 30 αν: a written over another letter 32–40 several gaps left along a ridge in the writing
 surface, e.g. 39 ἐπὶ ος 40 l. φλεβ[σ]τομαίᾳ

- 'To those who are in the increasing phase of the disease ... (f).
 'And to whom ... ?
 'To those in a stable condition, the peak, and (the declining phase) ... and varied.
 'And to whom ... ?
 'To those who are in recovery, properly ...
 'Is (chilling) or shivering more serious?
 'Chilling ... with sensation ... shivering ... comes about for those in a stable condition ... without
 sensation, but chilling ... giving the appearance ... precedes ... fevers.
 'How (should one treat) shivering (and) chilling?
 '... the cold ... such as linens or cloaks ... and vapour baths ...
 'What is (fever)?
 'Increased heat (or) heating ... closed ...
 'How) should one treat ... ?
 '... the fever ... soaked in water mixed with olive oil ... warm water in the declining phase ... seed warm
 ... If ... difficult to bear ... drink plenty of water ... by means of sponges ... relax with warm water mixed with
 olive oil ... the pores ... If running (fevers) supervene ... strip of linen ... with cold water ... ground fine ...
 by means of a cyster ...
 'How should one treat burning fevers?
 '... in the beginning of the disease ... paroxysm, an embrocation of olive oil ... clean wool ... and in
 the increase ... blood-letting, and in the peak ...

3–5 This section consists of a series of three questions (the first lost) and the answers to them. There may
 have been further questions and answers belonging to the same series in what precedes. The focus is on patients
 in the different stages of illness. The questions are introduced by τίςιν, the answers by τοῖς. The verb governing
 these datives is lost; apparently it was given only in the first question. At 2, there seems to be a feminine nomi-
 native singular, γῆ. Of the first letter, a vertical survives with a diagonal descending from its top, consistent
 with either γ (cf. 3 ἄκμη) or ῆ. The penultimate letter has the upper and lower curves of ε or ε. The traces in
 between are badly damaged, but there is space for two letters. In the corresponding answer at 3–4, it seems clear
 that this is qualified by the adjective 'varied' (ποικίλη), and by another with the ending -θεῖα (βα[. . .]θεῖα, 'deep').
 ἢ μέγχι could well fit the traces, pointing to a mean between two extremes (qualifying e.g. διάταξι, 'regiment').
 I have been unable to find a convincing interpretation, however, and it remains unclear whether the general
 theme is therapeutic (e.g. "To whom is (remedy X, Y, Z) beneficial (βοθηεῖν)?" or diagnostic (e.g. "To whom does
 (symptom X, Y, Z) happen (γένεσθαι)?"). At 3–4, perhaps rather e.g. καὶ (ὀλλή ἐκὼν βοτ[. . .]θεῖα καὶ ποικίλη.
 Then the questions may be concerned with quantities of βοθηεῖν, perhaps starting with the highest and ending
 with the lowest. The asyndetic ἀσφαλῶν δὲ μῶφι (5) may be due to a supralinear correction incorporated into the
 text' (WBH).

1 ἐπιπέδῳσιν, l. ἐπι-. For the interchange of es and u, cf. Gignac, *Grammatik* 1189–91.

4 κοιλίᾳ, l. κοιλ-. For the interchange of oi and u, cf. Gignac, *Grammatik* 1197–9.

6–12 At 11–12, perhaps προσηύξει[αἱ ἀμφημιμῶν] ὠν πυρετῶν: cf. Gal. Cris. 2.3 (ix 653.4–6 K = 134.4–6 Alexanderton) τῶν δ' ἀμφημιμῶν οὐδὲ προσηύξει μῶφι οὐτ' εὐθὺς ἐξ ἀρχῆς οὐτε πρῶταίνων, ἀλλὰ περι-
 φέουσαι μόνον; also Paul. Aeg. 2.33 (CMG IX.1 106.24–6) τοῦ μὲν τριτάτου μετὰ βέγιος εἰσβέβληστος, τοῦ
 δὲ ἀμφημιμῶν χωρὶς βέγιος, 4 μὲν τὸ ἐξ ἀμφοῦ φρίξιν ὑπὸ φρίξιν, βέγιος μὲν ἐκαστὸν τὸ πῆγμα, μείζων δὲ
 περιβέγιος. For the preceding lines, WBH suggests e.g. περιέμβυξι μὲν αἰσθησέως ἢ ἀσθέρως ἢ ὀσθέρως] βέγιος συμ-
 βαίνει τοῖς ἀσφαλῶν [ἔχουσι, οὐδὲ] δὶχα αἰσθησέως ἢ δὲ περιέμβυξι, ἀπὸ τοῦ εἰ μῶφιαν παρέχουσα. 'Since

it is chilling accompanied by sensation, shivering never comes about for those who are safely off, nor without sensation; on the other hand, chilling, which gives the appearance of (being something) free from danger, ... For *ῥῖγος* as *περίφρῖος* μετ' αἰθέριεως (8), cf. e.g. the conception mentioned in Gal. *Trem. Pulp.* 6 (vii 610.14-16 K.), τὸ ῥῖγος ... κατὰφρῖος ἐστίν, ἀλλ' αἰθέριός. But it is not certain that the ideas presented here are paralleled elsewhere, and the following supplement may also be considered: *περίφρῖος μετ' αἰθέριεως γίνεται τὸ μὲν ῥῖγος ἐνβάθειας τοῖς ἀσθενέσι [ῥῖγος γίνεται] διὰ τὸ ἐκφρῖος, ἢ δὲ περιφρῖος τοῖς ἐν ἀρχῇ ἔλμψασα περιφρῖος*. Chilling (occurs) with sensation for it happens that shivering (occurs) to those in recovery without sensation, but chilling makes itself obvious (to those in the beginning (cf. of the illness)) ... The general point of this answer is that *περίφρῖος* is the more problematic or serious symptom.

The physiological explanations of shivering, *ῥῖγος*, its relationship to trembling (*τρεμάω*), and the action of cold in connection with these, appear to have been the subject of a considerable body of medical literature. Galen, for example, takes Athenaeus of Attaleia to task for discussing only the opinions of Asclepiades, Heraclides of Pontus, and Strato of Lampascus on *ῥῖγος*, and passing over the opinions of others no less reputable (*Trem. Pulp.* 6 (vii 615.16-616.6 K.)). Galen takes it as self-evident that *ῥῖγος* cannot occur without the sensation of cold (*Trem. Pulp.* 6 (vii 608.8-609.3 K.)). He also distinguishes *ῥῖγος* from chilling, *κατὰφρῖος*, primarily on the grounds that the former is a pathological condition, the latter not although shivering cannot occur without some sort of chilling, the two can hardly be identified (*Trem. Pulp.* 6 (vii 607.4-7, 610.3-614.2 K.)).

Both terms are Hippocratic. For their importance in prognostic contexts, see here, cf. *Protrh.* I, e.g. 13, 35, 64 (v 514.6, 518.10, 526.6 L.), *κατὰφρῖος* 7, 61, 134 (v 512.4, 526.3-4, 558.6 L.), *περιφρῖος/περίφρῖος* 27, 31, 37 (v 516.10, 518.2-3, 522.3 L.), *περίφρῖος* cf. also *Conc.* 1 (v 888.2 L.). Perhaps criteria for distinguishing such terms were developed in part in the context of Hippocratic exegesis. Palladius, for example, defines *ῥῖγος* in his commentary on *Epid.* VI (ii 22.6-7 Dietz): *ῥῖγος δὲ οὐδὲν ἄλλο ἐστὶν ἢ περιφρῖος καὶ κλύωσ*. A very similar definition is given by Theophilus in his commentary on *Apb.* (ii 402.17-38 Dietz). Cf. also Hr. *Morb.* I 24 (vi 188.23-190.6 L. = 72.5-11 Wittern), which draws distinctions between strong *ῥῖγος* and *τρεμάω*, a weaker form simply called *ῥῖγος*, and the weakest form, referred to as *φρῖος*; the subsequent discussion seeks to explain why fevers supervene on *ῥῖγος*.

6 *γυλακτῖζον*, I. *γυλακτῖζον*. For the adjective, cf. e.g. Gal. *Protrh.* 2.48 (xvi 671.15-16 K. = CMG V.9.2 89.23-4) καὶ οὐκ γὰρ σπυρεῖς εἰν ἢ περιφρῖος γυλακτῖζον σπυρεῖται ἐστίν, 3.33 (xvi 786.6-7 K. = CMG V.9.2 146.15-16) γυλακτῖζον θηλονεῖ περιφρῖος ἐστὶν ἢ κατ' ἄνω τὸ αἶμα. For the interchange of ω and ο, cf. Gignac, *Grammar* 1 275-7.

7, 9, 12 *ῥῖγος*, I. *ῥῖγος*. Cf. n. on the spelling.

9 *εὐβάθειας*, I. *εὐμ-*. For the unassimilated *υ* in composition, cf. Gignac, *Grammar* 1 168-70.

10 *ἐκφρῖος*, I. *α-*. For interchange of α and ε, cf. Gignac, *Grammar* 1 392-3.

12-16 The answer indicates that the question is concerned with the treatment of shivering and chilling; it sets out a number of therapies, including the use of linen and blankets to keep the patient warm (5), as well as a vapour-bath (16 α). These warming remedies suggest that τὸ θέρμα [ἴσθησι] should be restored at 14-15. (Or an acc. sing. masc. of the person providing the care (WBH)). The question may be restored as follows, consistently with the average line length conjectured at 8-11 (for the phrasing, cf. 22, 36): τὸ ῥῖγος αἰτίαι ἐστὶ θρασεῖων καὶ (ῥῖγ) [περίφρῖος; ('How (should one treat) shivering and chilling?').

16 *πυρία* is probably in the dative case, like *ὀφθαλμοί* and *ἰμιαίτοι* at 15. A restoration such as *πυρία[ς] χρεῖ[σθαι]* would fit the traces; then WBH suggests [ἔ]τερε[ς]. (While it is not certain that the infinitive should be read, *χρεῖ[σθαι]* does not appear to be possible.) *π* is the start of the line could be either *π* (cf. 15) or the end of another dative.

17-21 *πυρετῖς* at 17 is consistent with the reference to increased heat at the beginning of the answer (18), as well as with *σπυρεῖς* (5) and the reference to certain types of fever in the subsequent therapeutic section (esp. 23 *ῖουδεις* cf. n.). Fevers were also mentioned at the end of the preceding section (11-12). For the beginning of the answer in 18, cf. e.g. ps-Gal. *Int.* 13.5 (vii 729.11-12 K. = 48.7-9 Petri) *εὐμεγέθεις δὲ τοὺς σπυρετῖνας ἐκ τῆς θερμῆς τῆς ἑπιτεταμένῆς καὶ ἀποροῦσιν* (Διακρίσι I. Γαροφίλο, *Galenus* 4 (2010) 376)

ὄλεος. ('Then perhaps α[ἰ] ἀποροῦσιν or δὴ ἀποροῦσιν at the end, as in ps. Gal, but cf. also 19 n.' (WBH).)

19 ἀνο[]λα.] 'Perhaps ε.g. ἀνο[]λοσ[]τα, with ε.g. κ[]αὶ σφραγῖς | νοσ[]ει before: cf. e.g. ps-Gal. *Def. Med.* 18 (ix 398.5-7 K.) σπυρεῖς ἐστὶν ἢ τοῦ ἄρθρου θερμοῦ εἰς τὸ παρὰ φύσιν ἐκτροπῆ τῶν σφραγῖδων ἐφοδοσθέντων τε καὶ πικρανοῦσιν γυλακτῖζον' (WBH).

] ὁμοίη τ[]: e.g. γυλακτῖζον (I. γυμ-) ἢ τ[] WBH.

20 *ἐκφρῖος*—read and supplied by WBH. Cf. for the term MP² 2373.01 fr. A II 1 (ed. I. Andorlini, in ed. edd.), 'Specimina' per il Corpus dei Papiri Greci di Medicina (1997) 160 *ἐκφρῖος*, with Andorlini's note (pp. 162-3); P Turner 14.11 *ἐκφρῖος* (D. Leith, *BASP* 44 (2007) 127-8). As in those cases, the term may refer here to the Methodist common condition of 'artificial' (cf. 5233-4). The Methodists held that fevers could be characterized by one of the common conditions, i.e. structure, flux, and their combination: cf. ps-Sor. *Quaest. Med.* 149.3C (ed. K.-D. Fischer, in id. et al. (edd.), *Text and Tradition* (1998) 90; fr. 296 in M. Teusan (ed.), *The Fragments of the Methodists* (2004)) *Methodici autem sic responderunt, febrem esse qui ex alio stricte color continetur, cum vitio stricte non sit fluxionis aut complicatiois*. Fevers characterized by flux are discussed below from 32 onwards (46 δὲ ῥοδῶδες ἐνὸν[]τοισιν) for the term, cf. the Methodist fragment 5233 1 9). The definition at 17-21 may have distinguished between the various kinds of fever; then treatments may have been set out for each in turn, with 'constricted' fevers coming first at 23-31. This would also make good sense of the references to 'relaxing' at 30 (ἀνο[]λα) and to pores at 31.

21]πυ[] WBH, which would be consistent with 'constricted' fevers: cf. previous n.

] *εὐρεῖα*, cf. *κατ' ἔχρησθαι* WBH.

22-23 This section sets out a range of therapeutic measures apparently for the treatment of various forms of fever: cf. esp. 23 τῶν σπυρεῖς 32 *ῖουδεις* (see n.) and perhaps also 27 *δυσμορφοῖσθαι* (cf. n.).

23 *πῶς δὲ θερμ[]ται* 32, 36. 'The same is no doubt to be supplied at P. Mil. Vogl. 1 15 → 9, 28: cf. I. Andorlini, *Pap. Congr. XIX* (1992) 389 (WBH).

τοὺς σπυρετῖνας WBH prefers *σπυρεῖς*: cf. 12-13.

23]πυ[] perhaps]πυ[] or ἀνο[]λα. WBH suggests *θερμῖσθαι*.

έστω]. The final trace is the edge of an upright. WBH suggests *έστω* [] (or another form of the verb) followed by e.g. *έστω* (cf. 39) in agreement with *βελγῖοσφῖς*: cf. BKT X 21.2-3 nn.

24 ὀρεῖλαι. Cf. 30. For its use, cf. BKT X 21.4 n.

26 *θερμῶ* may go with what follows rather than with *εὐρεῖα*.

27]α[]: e.g. *θερμῖσθαι* WBH.

δυσμορφοῖσθαι. The variant *δυσμορφοῦσθαι* is used by Sextus Empiricus (*M.* 9.154, etc.), but the form restored here is the one used by other medical writers, e.g. *Gal. Loc. Aff.* 3.5 (viii 153.8 K.). It is not used elsewhere of a form of fever. 'In view of what follows, perhaps e.g. *δυσμορφοῖσθαι* ἢ τὸ ῥοδῶδες or *δύσει*: cf. Hirsch, *Med. ap. Orib. Coll. Med.* 5.30.7 (CMG VI.1.1.148.7-9) + P. Tebt. II 272.1 19-20 (MP² 484.0) εἰ μὴ ἀδελφῶδες ἐστὶν λαίονος ἐν μὲν ἀποροῦσιν τὸ ῥοδῶδες, ἀποροῦσιν δὲ τῆς πυρεῖς τὸ πῶδες ἐν τῇ τῶν σπυρετῖνων ἐπιθέσει' (WBH).

28 *γῦρ[]*, *δελ[]*, or *δελῶν πῶδες* might be considered.

πέσσει. For the spelling, cf. n.

29] *πυ*. WBH supplies *πυρία* *πυρία* *πυ*.

30 ὀρεῖλαι. Cf. 24 n.

ἀνο[]λα (or another part of the verb) read and supplied by WBH.

31]μῶσιν. WBH suggests e.g. *πικρανοῦσιν*.

πόρων. The pores of the skin, or, if Methodist doctrine lies behind this section (cf. 30 n.), the impermeable pores or interstices in the structure of the body, which can be closed, as here apparently, or opened up.

The doctrine derives ultimately from Asclepiades of Bithynia's theory of matter (cf. 5236).

32 *ῖουδεις*. This term is used of fever with diarrhoea and vomiting: cf. ps-Gal. *Def. Med.* 191 (six 399.17-400.2 K.). For its possible Methodist significance, see 20 n.

33] *εὐλοσσω* μὲν ἐπιθέσθαι. WBH suggests e.g. *καὶ μὴ πικρανοῦσιν*, *εὐλοσσω μὲν ἐπιθέσθαι*, 'and do not stop, apply astringent ...' (or *ἐπιθέσθαι*).

14 ἦθ [i: ἦ φη] χρ WBH, comparing for the shape of the final letter-*θ* in 35.

35] α: ε β, ἄ θυ[ι]φ WBH.

θῶ κλυμ[ι] read by WBH, who supplies κλυμ[ι]θῶ, κλύμ[ι]στος, or a plural.

36 κελύουε WBH: cf. 12–13, 22.

38 παρ[ο]ξυσμ[ο]σ ἐπιβροχ[θ]ή θλάσιον. 'Cf. P. Turner 14.16–19 τίς ἐπιρτος κω[ι]δ[ε] κατα[ι]β[ρο]χ[θ]ή; καταβροχ[θ]ή κω[ι]δ[ε] θ[ι]π[ι] μὲν τῶν ὄλων παθῶν θ̄ κατὰ τῆς ἡμέρ[α]ς[ιν] αἰθέρις. Perhaps here "before" or "until" in some form preceded" (WBH).

39 ἐρίσιον supplied by WBH, who suggests e.g. δ[ι] before. Cf. also 23 n.

40 φάθ[ε]στομεθ[ι] (L.-τομ[ε]θ[ι]) read and supplied by WBH, with χυρ[ε]νῶν or χυρ[ε]θ[ε]νῶν before governing the dative; for the spelling, cf. 1 n. On the right time for blood-letting, cf. MP³ 2373.01 fr. A ii 40–44 τίς | κω[ι]δ[ε] φλεβοτομ[ια]ς; ἡ ἐπιθωσις μὲν | τῶν ὄλων παθῶν, ἀνεσις δὲ τοῦ κατὰ μέρος παροξυσμ[ο]σ ἐντός τῆς πρώτης διαφρήτου, with Andorlini (20 n.) 165.

π[ρ]ι[σ]θ[ι]α[ς] (or the singular) supplied by WBH.

D. LEITH

5239. MEDICAL DEFINITIONS

57/29(a)

5.5 x 10.5 cm

Second/third century

Plate II

The top of a column, with upper margin preserved to a depth of 2.3 cm, and right-hand margin to a width of 0.5 cm. There is a four-layer *kollesis* on the left. The back is blank.

The text is written in an informal round hand leaning slightly to the right. *θ* is broad, with its crossbar projecting slightly to left and right; *υ* may be V-shaped or looped at the top right-hand corner with deep bowl and curved tail sweeping to the right (cf. 4 *υ*γρου); *ω* is broad, with high central cusp. Cf. XVIII 2161 (*GMAW*² 24), L 3533 (*GMAW*² 86), both assigned to the second century, and P. Berol. 9780 r. (Didymus; *PGB* 20, MP³ 339), assigned to the second/third century.

The definitions are articulated in question-and-answer format: cf. 5238 above. High stop marks the end of each answer (2, 6, 9), and was no doubt accompanied by paragraphus. The supplements indicate that indentation was not employed. The use of the high stop is paralleled in the medical questionnaire GMP I 6, but there each question appears to have begun on a new line in *euthetis*.

Lines 8–15 overlap with the third-century papyrus P. Oslo inv. 1576 v. 1–5 (ed. A. Marzuela-Solbakk, D. Leith, *Pap. Congr. XXIV* (2007) 637–50; MP³ 2340.02). For such overlaps in medical questionnaires on papyrus, cf. P. Ross. Georg. I 20.68–93 (MP³ 2343) and MP³ 2343.01 3–17 (P. Strash. gr. inv. 849, ed. C. Magdeleine, in I. Andorlini (ed.), *Testi medici su papirino* (2004) 63–77), on *σταφύλιωμα*; P. Ross. Georg. I 20.94–115 and P. Aberd. II fr. 1.2–20 (MP³ 2342), on *περὶ γίνου*.

P. Oslo inv. 1576 v. 1–5 is highly fragmentary, but so far as it is preserved, it corresponds exactly to 5239, except that a different spelling is used for *ὕγροκλήη* (cf. 15–16 n.), and the gaps in each of the papyri can be filled with some confidence from the other. Nevertheless,

the textual tradition of compilations of this sort was highly fluid, and we should not conclude that they represent exactly the same text. The three medical questionnaires on eye conditions mentioned above overlap but display notable variations. P. Oslo inv. 1576 belongs to a batch of papyri purchased by S. Eitrem in Egypt in 1936, of which several pieces have been shown to be from Oxyrhynchus and Oxyrhynchite villages. There is thus a possibility that it was copied in Oxyrhynchus at about the same time as 5239.

The surviving text is restricted to simple definitions of pathological conditions, as in P. Aberd. 125, ps.-Gal. *Def. Med.*, and ps.-Sor. *Quaest. Med.* Other medical questionnaires on papyrus that deal with individual diseases address additional aspects such as aetiology and treatment. The sequence of conditions is perhaps somewhat unexpected, in that the apparently predominant theme of tumours or swellings in the area of the groin (*κωιδύλωμα*, 1–2; *ἐντεροκίλη*, 10–15; *ὕγροκλήη*, 15–16), to which the less localized swelling *ἀπόστημα* (2–6) could also logically belong, is interrupted by the definition of *αἱμορραγία*, haemorrhage, at 7–9.

Despite some more or less close parallels with definitions found in other collections such as ps.-Gal. *Def. Med.* (see 1–2, 8 nn.), there is little sign of any direct relationship with extant medical texts of a comparable sort. On the textual relationships of such medical papyri in question-and-answer format to other medical compilations, cf. I. Andorlini, in A. Garzya, J. Jouanna (edd.), *I testi medici greci* (1999) 7–15; GMP I 6 introd.; A. E. Hanson, in A. Garzya, J. Jouanna (edd.), *Trasmisione e ecdotica dei testi medici greci* (2003) 199–217.

In the transcription, the contribution of P. Oslo inv. 1576 v. 1–5 is placed within upper half-brackets.

... I, [] . η στολιδων
 επαιψατεια. τι ε-
 τιν αποσχεμα; ογκος
 ... [] θης υγρου πε-
 ... [] ος αναβρωτι-
 κην δυψαμιν εχων.
 τι εστιν αιμορραγια;
 [Αδβρο]ξ εν'χη[λι]ς αιμα-
 τος μετ' ακουτικου.
 10 *τι εστ'ω] εντεροκηλη;
 εντερου] κα'τολιθη-
 ρισ' κατ'α] μεν αρχας
 εις βουβων'α, υξτερον
 δε' και ει]ς αυτον τον
 15 οσχεον.] τι εσ'τω [υ]χ'ρο-
 κηλ'η; αρηχο] υχ[ρο]υ
 ευστασις] . [

2 cis 3 l. αποσχεμα 6 χωρ 9 μου 12 c written on another letter (ω) 13 ε
 15 εστε: surplus ink to left of :

'... swelling of folds. What is αποσχεμα? A tumour ... fluid ... which has a corrosive property. What is αιμορραγια? A violent effusion of blood with emission. What is εντεροκηλη? A prolapse of the intestine initially into the groin, and later even into the (scrotum) itself. What is ογκοκηλη? (A collection) of idle fluid ...'

1: [] . η. WBH suggests e.g. η definition ending in -[ε]ις, followed by η introducing an alternative.
 1-2 στολιδων | [ι]ψατεια. These terms or their cognates appear regularly in surviving definitions of κοηδωματα: cf. ps.-Gal. Def. Med. 420 (ix 446.16-17 K.), κοηδωματα εστι δακτυλιου στολιδος επαστασις μετ' φλεγμονης; Paul. Aeg. 6.71, 80 (CMG IX.2 135.5, 124.13-15); Paul. Nic. 71.2-9 Iserac Bio (p. 137) and in a gynaecological context Aspasia ap. Aët. 16.118 (155.23-5 Z.). WBH adds Aët. 143 (Laur. pluit. 75.7 f. 6v-62r) δακτυλιου στολιδος τοδε επαναστασης και διογκωμενης παρα φεου. Paul. 4.203 (f. 261.9-10 Betho) offers a somewhat different definition, also near definitions of εντεροκηλη and υδροκηλη: κοηδωματα περι την στερηλην του δακτυλιου αλεπον οσημα.

3-6 In the first part of the definition (3-5), WBH suggests ογκος | [εντερι]θη] υγρου πε[ρι]στικ[ε]ι]ς; cf. Paul. Aeg. 6.36 (CMG IX.2 74.19-20) τι μεν βιας αποσχηματα καλοουμε φλεγματοειδη εστι και επιδωματα και δριμυτες υγρου και διαβρωτικου περιεκτα, and for εντερι]θη]ς, e.g. Paul. Aeg. 4.17.2 (CMG IX.1 334.17-18) της βιας ονομαζομενης φλεγμονης ... ητις ογκος εστιν εντεροθη]ς κτλ. The definition in the papyrus diverges significantly from other surviving definitions, which generally mention an alteration or mortification of tissue and the production of pus: cf. ps.-Gal. Def. Med. 387 (ix 442.10-11 K.) αποσχημα εστι μεταβολη] κυματων και της φλεγμοης εις πινον (cf. also 411 (ix 445.5-6 K.)); Gal. MM 14.12 (ix 984.5-10 K.) θεπτον δε και τριουτον (sc.

του αποσχηματος) το γινος, τε μεν σταν ελαστικαυ φλεγμονη] αβρουθη] το πινον ... το δ' ετερον ειναι φλεγμοης προσηγορια, υγρου τινος ειδη] δε αρχη] αλλοτε μεν εδωκεν και' αλλω και' αλλω, αλλα πινονα γινε μεν δριμυτες αβρουματων και' εις μερουν (cf. also Jam. Pr. Mat. 3 (vi 715-714 K.)); Orib. Ec. 97.1 (CMG VI.2.2 373.7-10) αποσχημα εστι φθορα και μεταβολη] κυματων ητοις περιεκτα ... κυματαβλαδιωτων και καθησθησθηστων του κυματιμου σωματι και των περιεχομενων εν αυτοις υγρων (cf. Paul. Aeg. 4.18.8 (CMG IX.1 338.6-7)).

8 Αδβρο]ξ εν'χη[λι]ς αιματος εστιν αιματος εντω αιματος λαβρο]ς εσχισις κατα περιερινου μεν μεγαλησ οθερσ τροσικωσ, και' αποσχημα δε εις στροτηνη] ταυχωνωσ ας επι των φλεβοστων.

9 μετ' ακουτικου supplied by WBH; cf. Aët. 3.13 (CMG VIII.1 273.20), Orib. Coll. Med. 7.20.2 (CMG VI.1.1 211.27-8).

10ff. Hernias, σφηλα, of various kinds are referred to also in the question-and-answer papyri PSI III 252 (partial re-edition: GMP II 14), and in SB XXVIII 1736.3 (ed. J.-L. Fournet, in I. Andorlini (ed.), Testi medici in papiro (500ca 177-9); cf. also LXXIV 4975 fr. 1.8 προς εντεροκηλη]μα πασιδων, P. Mich. XVII 758 F 5 εντεροκηλη].

10-15 εντεροκηλη. WBH compares Leonid. ap. Aët. 14.21 (Laur. pluit. 75.7 f. 71v, ch. 23, col. 85; Cornarius (1549)) η εντεροκηλη καταλεθρις εστιν εντερου ποτε μεν κατα τον βουβωνα γιγνομηνη, ποτε δε κατα τον οσχεον ... γιγνεται δε το πιδωσ ποτε μεν και' εντετασ του περιετατου, ποτε δε κατα βη]ου. επι μεν αυτ]ησ και' εντετασ, και' αρχας μεν εις τον βουβωνα η χελαισις γιγνεται ..., επι πλεον δε μεγεθυμενου του ογκου καταβη]ζεται και διογκο]ι τον οσχεον.

13 βουβωνια supplied by WBH here and in P. Oslo inv. 1576 v. 4 (βουβων]α); cf. 10-15 a.
 15-16 [υ]χρο]κηλη. Cf. Fournet (10ff. n.) 178 with n. 12 for this variant form of υδροκηλη. P. Oslo inv. 1576 v. 5 has υδροκηλη]. For the definition, cf. ps.-Gal. Def. Med. 424 (ix 447.11-12 K.) υδροκηλη] εντω αβρου] οθροσ ευστασις κατα μερουν του οσχεου.

17 The end of the definition was no doubt close to that given by P. Oslo inv. 1576 v. 6-8, where WBH tentatively supplies και]τω] εντερο]ειδη] αραιουμενων των οσχεων εσταπλεκτικων αγγ]ειων, comparing Leonid. ap. Aët. 14.20 (Laur. pluit. 75.7 f. 70r; ch. 22, col. 849 Cornarius (1549)) η υδροκηλη] γιγνεται ποτε μεν δε] αδηλου, ποτε δε εκ προδηλου αιτιας: δε] αδηλου μεν εκ του αυτοματου αραιουμενων των καταπλεκτικων των οσχεων αγγειων κτλ. The ed. pr. proposes η] οπη] του εντερο]ειδη] η] οπη] του διαρην] | η] οπη] του οσχεον ρη]αι τι μερουν των ?? | αγγ]ειων.

D. LEITH

5240. TREATMENTS FOR EYE CONDITIONS

16 2B.46f(Cb)

Fr. 3 f 6 x 5.9 cm

First century
Plate X

Four fragments with text running along the fibres. Lower margin is preserved in fr. 4. to a depth of 1.3 cm and left margin in fr. 2. to a width of 1 cm. The back is blank.

The text is written in an informal and irregular upright round hand. It is only approximately bilinear, with φ projecting above and below the line. α has a pointed loop; the cap and crossbar of ε tend to be made in a single movement, which may be ligatured to the following letter; the branches of κ may be separated from the upright; μ is deep; the oblique of υ often continues to the left of the first upright, producing a small hook; π has a curved right-hand side; τ may have a split top, and its upright may turn noticeably to the left at the foot; υ may be Y-shaped or V-shaped. II 216 (GLH 10a), assigned to the first century, has a similar appearance.

P. Lond. II 260 (Kenyon, *Palaeography* Pl. V) of c. 73 is a document with a number of the same letter-forms.

Iota adscript is written consistently in datives in *-ου*. ἀγγύτριον is written for ἀγκ- (fr. 1.1, 4), ταρρῶς is spelt with -ρρ- rather than -ρς- (fr. 3.7), ει represents long ι (fr. 1.5), and υ is left unassimilated in composition (fr. 2.3). Diaeresis is applied to the υ of ὕπο(-) at fr. 1.5 and 6 and used organically in mid-word at fr. 3.6. A paragraphus is found under fr. 2.2 and a new section begins below, with its first line projecting into the left-hand margin by about the width of a letter. Expunction dots are used at fr. 1.7, and corrections are made by adding or replacing letters above the line (fr. 3.6, 9). There is no evidence that more than one hand has contributed.

Fr. 1 is concerned with surgery for pterygium, fr. 2 with encanthis, fr. 3 probably with surgery for an everted eyelid, and fr. 4 with cataract surgery. In frs. 1 and 4, we find second-person singular imperatives (fr. 1.5, fr. 4.7 n.), and in fr. 3, a first-person singular past-tense narrative (3, 8, 13). The order is uncertain, but encanthis and pterygium are likely to have been considered close together, as commonly (cf. fr. 1 n., fr. 2.3ff. n.).

Ophthalmological texts on papyrus are collected by M.-H. Marganne, *L'Ophthalmologie dans l'Égypte gréco-romaine d'après les papyrus littéraires grecs* (1994), hereafter 'Marganne'; a recent addition is the fourth-century questionnaire P. Strasb. gr. inv. 849 (MP³ 2343.01), published by C. Magdelaine in J. Andorlini (ed.), *Testi medici su papiro* (2004) 63–77. Particularly relevant to the present papyrus are the second-century questionnaires P. Ross. Georg. I 20 (MP³ 2343, Marganne ch. 4) and P. Aberd. 11 (MP³ 2342, Marganne ch. 5), each of which includes a section on surgery for pterygium.

The purpose of the present text is unclear. It may have belonged to a manual for a student, or else to an account of lectures on surgical procedures for the benefit of an educated audience, illustrated with some successful cases. If so, it would be similar in purpose and form to Galen's *Anatomical Procedures*: cf. e.g. Gal. *AA* 1.1; 7.10, 12–13; 8.6 (ll 215–218.15, 618.5–623.8, 626.14–634.12, 681.3–684.9 K. = 1.1–5.20, 441.25–447.30, 453.1–461.29, 519.11–523.11 Garofalo).

A point of interest is the appearance alongside more or less familiar diminutive forms used of medical tools (fr. 1.1, 4: ἀγκύτριος; fr. 1.5: ἐμυλάριος) of a new term, περιῶδιος, for which see fr. 3.6 n.

Fr. 1		Fr. 2	
		] ας λαβὸν ἀγγύτριον	
		] τέύωναι αὐτὸ ἔνθ' αἰ	
		τὸ] πτερύγιον πρὸς αὐτὸ]	κασ-
		] ἢ ἄλλαι ἀγγύτριαι κα]	θού τ.]
5		] ὑπόθερε ζυμυλάριος	5 ἀφθω]
		] ας ὑπο]	
Fr. 1	1, 4 ἄγκ-	2 τῶά	5, 6 ὕπο
			5 I. ἐμυλάριος
Fr. 2	3 I. ἀγκαιθι-		
Fr. 3			Fr. 4
] , [] , [] , []] , []
		] , τὸν τύλον ἐπ[α]μει	] ἐπιθεῖς [
		τ]οῦ ὀφθαλμοῦ ἤρχο]	δ]εσμειο[
		] ὑπὸς ταῖς κροτάφω[ι	] τιν ὅταν [
5		]θε τοῦ ἄλλου ἀπὸ τοῦ κρο[τάφου	5] , ἐκ τοῦ β[
		π]εριῶδιου π[α]λ' ἐρ' εἰ ἀρεῖν πρ[ι]	] , εὐτεωη[
		τάω] ταρράω] ἔξωθεν εἰθο[ι	] γε δὲ καὶ εκ[
		] ὑ ἔξωθεν ἕως ἐξεγλυψ[ι	
		τὸ]ν τύλον τὸν ποιοῦ'ντα [
10		] σπην κα[τ] εἰ μὲν εἰς τ[
		] . . τὸ βλ[ε]φaron παρ[α]	
		] μη ἔξωθε[ν	
		] εν ἕτεμον [
Fr. 3	6 ἰαδι	εἰ	πάρω
Fr. 1	'... taking a small hook ... stretching it ... the pterygium towards ... other small hook and (?) ... detach with a small knife ...'		

- Fr. 2
 '... to (?) ...
 'Ecanthis ... corner of the eye ...'
- Fr. 3
 '... the callus carefully (?) ... the eye ... I began ... by the temple ... the other from the temple ... :
 to remove with a small round-bladed knife (?) ... the edge of the eyelid from outside ... from within until I (?)
 scooped out ... the callus making ... eversion (?) and if ... the eyelid ... from outside ... I cut ...'
- Fr. 4
 '... placing ... blind ... when ... from the ... couch ... and ...'

Fr. 1
 Instructions for excision of the pterygium, a triangular growth of fibrous tissue spreading towards the cornea. Ps.-Gal. *Int.* 19.6 (siv 784.4-7 K. = 93.3-7 Petri) has a brief account: τὸ πτερύγιον ... περιαιρούμεν ... ἢ λίαν διεκείνηται ἢ ἀγένητον. In his detailed account, Celus (7.7.4 (CML I 313.5-314.16)) describes the use of a hook and then a thread, together with the handle of a scalpel, to lift the pterygium before it is cut out with a scalpel. Aët. 7.62 (CMG VIII.2 315.9-316.9) and Paul. Aeg. 6.18 (CMG IX.2 58.15-59.6) have a procedure in which the pterygium is detached with a horse's hair by means of a saw-like action before the adhering parts are cut out; Paul mentions a procedure like that described by Celus, not involving a horse's hair, as an alternative. There are brief and fragmentary accounts on papyrus in P. Abert. II fr. 1.9f. and P. Ross. Georg. I 20.10-15. See further Mergane 129.

ὄγκυστραίου ἰ. ἀγένητον. On γ for α, see Gignac, *Grammar* 1 29. In the operation for pterygium as described by Aëtius (7.62), two different hooks (ἀγένητρον) were used (CMG VIII.2 315.10, 15, 316.1): a blunt hook that served to keep the eyelid open, so that the operation could proceed, and a small sharp hook that was inserted in the middle of the pterygium and used to lift it. Both types have been identified by archaeologists: cf. e.g. J. S. Milne, *Surgical Instruments in Greek and Roman Times* (1907) 85-8; R. Jackson, *Britannia* 17 (1986) 139-45; id. in L. Allason-Jones (ed.), *Artefacts in Roman Britain* (2011) 255-7; E. Kinzli, *Medizinische Instrumente aus Sepulkralfunden der römischen Kaiserzeit* (1983) 19. It is not clear to which type of hook ἀγένητρον refers here. WBH argues that it is the hook used to raise (cf. 2 n.) the lid, as the lids must be separated before the 'other hook' (4) can be used to lift the pterygium. For the use of the word in medicine, cf. Annyll. ap. Orib. *Coll. Med.* 50.5.4 (CMG VI.2.2 58.12). In the papyrus, it is otherwise found only in P. Abert. II fr. 1.12-13; it is not clear which form was used in the lacuna in P. Ross. Georg. I 20.13.

2 Πτερόν. Probably ἀγένητρον, which is frequently used in this context: cf. Aët. 7.62 (CMG VIII.2 315.11, 16, 316.3); Paul. Aeg. 6.18 (CMG IX.2 58.22, 25, 29); also ps.-Gal. *Int.* 19.6 (siv 784.7 K. = 93.6 Petri). αὐτὸ ἰσὺ αὐτὸ might refer to the pterygium, the hook, or the thread that may be used to hold the pterygium up, but other possibilities cannot be excluded. 'Perhaps rather the eyelid: cf. 2 n. The scribe may have begun to write τὸ ἀγένητρον, present in his exemplar as a (perhaps supralinear, and perhaps incorrect) explanation of an ambiguous αὐτὸ, before realizing his mistake and cancelling the superfluous letters' (WBH).

3 τὸ πτερύγιον πρὸς αὐτῆ: αὐτῆ [i. αὐτῆς], or αὐτῆς. The reference may be to the action of the surgeon who has to lift the pterygium and gently detach it by means of a thread and a horse's hair, starting from the cornea and moving towards the caruncle, or to the use of a scalpel handle to separate any part of the pterygium that adheres to the eyeball, as mentioned by Celus (7.7.4B (CML I 313.20)), but see next n.

4 ἢ ἔλαιον ἀγένητρον ἢ ἰ. ἀγένητρον. Probably τὸν, ἢ. The reference is perhaps to the sharp razor than the blunt hook of 1 n. 'The procedure described appears to be the simple one known from ps.-Gal. *Int.* 19.6. The author seems to have moved quickly from the introduction of the "other hook" (used for lifting the pterygium) to the excision (5). There will scarcely have been room for the procedure described by Aëtius and Paul of Aegina involving the use of a horse's hair to separate the pterygium gradually from the eye. Even the use of a thread to keep the pterygium raised seems unlikely to have been included. In P. Abert. II fr. 1.12-13,

the hook and the needle and thread may be presented as alternatives, as in ps.-Gal.: cf. I. Andorlini, *CE 70* (1995) 313, who suggests (after Turner) δ' ἀγένητρον ἢ βελόνης | where Mergane 104-5 has ἀγένητρον | βελόνη | (WBH).

5 ἢ ὀπίσθεν ἑκατέρωθεν [i. ἑκατέρωθεν]. For the spelling with ἑμ-, cf. Gignac, *Grammar* 1 121-2. Aët. 7.61 (CMG VIII.2 315.21) and Paul. Aeg. 6.18 (CMG IX.2 59.1) have the term περιαιρούμενον. For the alleged form of such a knife, a small narrow sharp-pointed scalpel with a right-angled traapezoidal blade, cf. e.g. Milne (1 n.) 44-5; Künzl (1 n.) 120 ff. 96, from a tomb in Wehingen (Basovia). The diminutive ἐκατέρωθεν is found in various medical texts and once elsewhere in the papyrus, at P. Land. VIII 148 v. 6 (n). O. Claud. II 408.6 (n) has ἑκατέρωθεν (l. ἐκατέρωθεν) in a letter accompanying the dispatch of a scalpel, a surgical knife (ἐπιτρόχον), and medicine; γκαίλα (l. ἐκαίλα) appears in GMP II 10.8 (vii/viii) in a request for medical tools. ἐκατέρωθεν also appears in lists of medical instruments found in Isidore of Seville and in various mediaeval manuscripts (Isid. *Etym.* 4.41: *similiaris*; H. Schön, *Hermes* 38 (1903) 283: *hämiliarium*; K.-D. Fischer, *Mitteil.* 22 (1987) 32-3: ἐκατέρωθεν and *ecellularium*; cf. L. J. Bliques, *DOP* 38 (1984) 302).

Fr. 2

3ff. Ecanthis. Cf. for this condition and surgical treatments e.g. ps.-Gal. *Def. Med.* 36f (xix 438.5-6 K.) ἀκαθῆς ἔστω ἀποροχῆ καρπὸς ἐν τῷ μεγάλῳ καθῶθ, *Int.* 16.6, 19.6 (siv 772.5-7, 784.4-7 K. = 81.23-32.2, 93.3-7 Petri); Orib. *Syn.* 8.36.1 (CMG VI.3 169.3-3), Aët. 7.63-4 (CMG VIII.2 316.10-317.3), Paul. Aeg. 3.22.20 (CMG IX.2 178.8-23), Celus 7.75 (CML I 314.17-26).

3-4 ἐκαστῆ (l. ἐκασ-)... καὶ ἴσθαι supplied by WBH: 'perhaps a definition, beginning e.g. ἐκαστῆ ἐστὶ τοῦ μεγάλου καθῶθ'. For ν left unassimilated in composition, cf. Gignac, *Grammar* 1 168-70.

There is a short horizontal stroke on the left-hand edge at the level of line 4, of uncertain significance.

5 αὐθῶν, 'E.g. συν]αὐθῶ[σιν, περι]αὐθῶ[σιν]' (WBH). A reference to alphas (ἀφῶν or ἀφῶσιν) is unlikely. ἀπερρ]αφῶν, κατερρ]αφῶν, or ἀπερρ]αφῶν would be wrongly divided (cf. perhaps 5238 10-11).

Fr. 3

Account of surgery for a condition affecting the eyelids. Some puzzles remain, but to judge from 8-13 (cf. nn.), the condition involved is probably ἐκέρωσιν (evered eyelid), for which cf. Celus 7.7.10 (CML I 318.13-22); Aët. 7.73-4 (CMG VIII.2 312.24-314.20); Paul. Aeg. 6.13 (CMG IX.2 51.2-4).
 2 τὸν τῶνον ἐπιλάμψαι. Perhaps ἐπι]λαμψῶν; otherwise e.g. a form of ἐπιλαμψῶν, or ἐπι]μψῶν. Calluses or callosities are connected with conditions such as *trachoma* and *ptilosis*: cf. Aët. 7.45, 80 (CMG VIII.2 297.13-208.11, 328.6-10); Paul. Aeg. 3.22.12, 17 (CMG IX.1 176.15-18, 177-211).

3 ἤρχεται ἤρχεται, ἤρχεται. Aët. 7.74 (CMG VIII.2 313.24) ἀπὸ τοῦ μικροῦ καθῶθ ἀρχόμενος approximates the second, and may indicate that little is lost at either end of the line: cf. 4, 8-10 nn. (WBH).

4 ἢ πρὸς τοῦ κροτάφου. Probably ἀπὸ τοῦ πρὸς τοῦ κροτάφου | καθῶθ, meaning the small angle of the eye, towards the temple, by analogy with the great angle which is sometimes called ὁ καθῶθ πρὸς τὴν ῥίνα or παρὰ τὴν ῥίνα (e.g. ps.-Gal. *Int.* 16.6 (siv 772.6 K. = 82.1 Petri)); cf. Aët. 7.60 (CMG VIII.2 313.6-7) ἀπὸ τοῦ πρὸς τῆ ῥίνα καθῶθ τοῦ μεγάλου καλυμένου. A reference to the small angle as temporal is found in Celus 7.7.4A (CML I 315.7-8).

6 ἰσραπίδιον: supplied by Prof. I. Andorlini. The word is new, but cf. *καρπίδιον*, diminutive of *καρπίς*, 'lance', which is thought to be derived from *καρπίον* (Chantraine, *Dict. Etym.* s.v.). *καρπίδιον* is known only from Aët. 1.2.9 (CMG II 146.19), but *καρπίς* is slightly more frequent and appears in the lists of instruments (fr. 1.5 n.). Diminutives in -ιδιον are often used for medical tools. This instrument for 'cutting around' may have been a scalpel with a curved blade, of a type used for eye surgery: cf. e.g. Milne (fr. 1.1 n.) 43-5; Künzl (fr. 1.1 n.) 52 no. 23. Cf. perhaps Lat. *catenularium*, a surgical instrument used on hooves, with *TLL* s.v.

ἡσῆ' ε' ἰσραπίδων: παραρτίδων corrected to *περαιρτίδων*. The verb *περαιρτίδων* was frequently used in surgical context: e.g. ps.-Gal. *Int.* 19.6 (siv 784.4-5 K. = 93.3-4 Petri), for operations on the canthus, pterygium, and saphyrioloma; also Aët. 7.74 (CMG VIII.2 313.6), in the context of surgery for *ἐκέρωσιν*.

ἦρ[ι]. Probably ἦρ[ι]δ[ε]ς, ἦρ[ι]δ[ε] with a straight stemmed r and a smallish o, not excluded.

7 τῶν] τῶν[ο]ν. On ῶ and ρ in the papyrus, cf. Gignac, *Grammatik* 1 142–5. The taurus is a cartilaginous plate which forms the margin of the eyelids, where the eyelashes grow; cf. e.g. Gal. *UP. 10.7* (iii 793.5–17 K. = ii 79.13–16 Helmreich).

εἴ[η]θ[ε]. Perhaps to be read as εἴ[θ]ε', cf. e.g. ἄρ[ι]στού, οἴθ[υ]ν. WBH notes that εἴ[η]θ[ε] would be difficult in a past-tense narrative.

8 ἐξέ[κ]λυθ[ε]. ἐξέ[κ]λυθ[ε] and ἐξέ[κ]λυθ[ε] are possible, but hardly ἐξέ[κ]λυθ[ε] to judge by 3 and 13. For different forms of ἐκ[κ]λυθ[ε], cf. e.g. Gal. *UP. 12.10*, 14 (iv 42.9, 57.8 K. = ii 212.2, 223.2 Helmreich); *Act.* 7.82, 85 (CMG VIII.2 330.1, 331.14).

8–10 D. Leitz suggests that the object of ἐξέ[κ]λυθ[ε] is *ἡ πλοῦς τῶν ὀφθαλμῶν καὶ τῶν παλαιῶν [τῆρ ἐκτρο]σῆν*. The line length is uncertain, but the condition is suitable; cf. notes below.

10 ἵσθη, perhaps the end of ἐκτρο[σ]ή, 'eversion' of the eyelid, but ἐκκο[σ]ή, 'cutting out, excision', could also fit the context. Both are employed by Aëtius, 7.74 (CMG VIII.2 323.9, 15; 324.13, 16), in describing the surgery for the eversion of the eyelid (ἐκτρο[σ]ή).

κα[ὶ] εἰ μὲν. WBH compares Paul. *Aeg.* 6.12 (CMG IX.2 55.10–12) καὶ εἰ μὲν ἀνάλοβι τοῦ χρῆμα τοῦ βλεφάρου καὶ εἴω τραπέζῃ, ἀρκούμεθα τῇ χειρουργίᾳ· εἰ δὲ ἔτι ἐκτρο[σ]ητο κτλ.

εἰ[τ]εῖ may be the beginning of a verb, such as ἐκτρο[σ]ομαι, which is used in some manuscripts of Aët. 7.74 (CMG VIII.2 323.17–18) in a description of the operation on the eversion of the eyelid; see also, in another context, *Hellod.* 49. *Orib. Coll. Med.* 46.30.4 (CMG VI.2.1 219.21, 22). Otherwise e.g. εἰ[τ]εῖ γ[ὰ]ρ or another form of the article; cf. *Act.* loc. cit.: τὸ βλεφάρου εἰς τὸ ἴσθη· τῆρ σῆμα μέρη.

12 ἵσθη. Possibly negative μὲν, in the protasis of a condition, e.g. εἰ δὲ μὲν; cf. 10' (WBH).

13 ἵσθη ἔκρωσις or ἵσθη ἔκρωσις. Both verbs are used in medical writings, the latter especially in surgical contexts. WBH proposes ἐκω[σ]ή; cf. 12; Paul. *Aeg.* 6.12 (CMG IX.2 55.12–14) εἰ δὲ ἔτι ἐκτρο[σ]ητο . . . κατὰ τὸ ἔκωσι μέρος τοῦ βλεφάρου δόντες δύο διαίρεσις κτλ.

Fr. 4

Instructions for touching a catarract: cf. esp. 6, 7 nn. The operation is described by Cels. 7.7.14 (CML 1 319.29–322.10), ps.-Gal. *Int.* 19.7 (xiv 784.7–12 K. = 93.7–12 Petit), and Paul. *Aeg.* 6.21 (CMG IX.2 60.5–61.29). ὀπόμενα is discussed together with γλαύκωμα in P. Ross. *Georg.* 1 20.55–67. See also 5244 fr. 1.3 n.

2) ἴσθη[ε] ἵ. This could be a reference to the patch that has to be placed on the healthy eye to hold it still while the other is operated on (cf. 3 n.), or to the medicine that has to be applied to the eye that is operated on. Less probably, it could refer to the position of the patient or to that of the doctor's finger on the eyelid. The finger is used to press the eyelid and to move it gently while observing the movement, if any, of the catarract, in order to decide if an operation is possible or not. The patient has to be seated facing the surgeon, in a well-lit room, and turned towards the light, but not in direct sunlight. See Cels. 7.7.14C (CML 1 321.15–16); Paul. *Aeg.* 6.21.2 (CMG IX.2 61.3–5).

3) ὀπόμενοι: a form of ὀπόμενος or one of its compounds, e.g. ἐπιὸπόμενος. WBH suggests the present participle passive, since an active participle would be expected to be in the nominative singular masculine, agreeing with the subject (cf. 7 n.). Cels. 7.7.14C (CML 1 321.28–29) recommends placing a woolen pad over the sound eye before the operation and bandaging it to keep it still; cf. Paul. *Aeg.* 6.21.2 (CMG IX.2 61.4–5), the sound eye before the operation and bandaging it to keep it still; cf. by Paul. *Aeg.* 3.31.1 (CMG IX.1 221.7–8) (ἐπι)ὀπόμενος is less common than ἐπιὸπόμενος. The latter is used e.g. by Paul. *Aeg.* 3.31.1 (CMG IX.1 221.7–8) in conjunction with ἐπιὸπόμενος in a passage relating to the application of a poultice for a breast condition; in describing the bandaging that follows the catarract operation (6.21.2), he uses ἐπιὸπόμενος together with ἐπιὸπόμενος (CMG IX.2 61.21–2). ἐπιὸπόμενος is also found together with ὀπόμενος in e.g. ps.-Gal. *Rem. Parach.* 3 (xiv 534.17 K.); Paul. *Aeg.* 4.16 (CMG IX.1 334.5).

4) ἴσθη. Probably ἵ[σθη]ν.

5) εἰ τοῦ β[λ]εφάρου would not suit a set of instructions for catarract surgery. Perhaps β[λ]άθου; cf. Paul. *Aeg.* 6.21.2 (CMG IX.2 61.13–13) ἤγε ἐπι τὸ βάθος φαρμάκ. WBH suggests that the verb was e.g. φάθουσι.

or ὀφθαλμοί; cf. Paul. *Aeg.* *ibid.* (CMG IX.2 61.14 16) ὀφθαλμοὶ δὲ οὐ χυλοὶ προφανῶς διὰ τῆρ διαφάνειαν τοῦ κερατοειδοῦς χετίωνος.

6] εἴσθη; perhaps παρα[σ]τηρεῖν. The verb is used by e.g. Gal. *UP. 10.1* (iii 761.1 K. = ii 53.2–3 Helmreich), ps.-Gal. *Int.* 19.7 (xiv 784.8 K. = 93.7–8 Petit), and Paul. *Aeg.* 6.21.2 (CMG IX.2 61.8) to describe the couching of the catarract.

7] ἵσθη; ἵ[σθη]ν; cf. Cels. 7.7.14E (CML 1 321.27–9) inclinanda acies ad ipsam suffusionem leviterque ibi verti et paulatim eam deducere infra regionem pupillae debet' (WBH).

7] ἵσθη καὶ εἴσθη. 'Supply ἄλλοι or κείνα' ἵσθη δὲ καὶ εἴσθη. Cf. Paul. *Aeg.* 6.21.2 (CMG IX.2 61.13–17) ἀνοθεὶ οὐ κατὰ κορυφῆν τοῦ ὀπόμενατος τὸ παρακεκλιγμένον ἄνοθε . . . καταγόμενος δὲ ἀνοθεῖ εὐὸς τοῦ ὀπόμενατος τόπου τὸ ὀπόμενα κτλ. εἴ(ς) seems to be used at fr. 3.10; for εἴ in documents. Cf. Gignac, *Grammatik* 1 258' (WBH).

M. HIRT

5241. ON EYE CONDITIONS

57/23(b)

Fr. 1 5.3 × 10.9 cm

Second/third century
Plate VIII

On the back of an account, and upside down in relation to it, three fragments written across the fibres. The lower margin is preserved in fr. 1 to a depth of about 2 cm. The blank space at the top of fr. 2 may represent the upper margin; that at the foot of fr. 3 probably represents the lower margin.

Fr. 2 and 3 are written in a plain medium-sized hand comparable to that of VIII 1100 (GLH 20b) of 206. Fr. 1 is written with a thicker pen but the letter formation is similar to that of the other fragments and it does not seem necessary to suppose that a different writer is at work, though this is a possibility. For variation in the work of a single writer on a single medical text, cf. esp. P. Strasb. gr. inv. 90 (MP³ 2379; Kalfleisch, *Pap. argent.* gr. Ph. I–II), discussed by I. Andorlini, in A. Garzya (ed.), *Storia e ecologia dei testi medici greci* (1996) 14 with n. 24; 5248 introd.

Diacresis is written over initial v (fr. 2.7; 3.2, 8). Middle dot marks the end of an answer in the questionnaire (fr. 2.10; 3.5, 8, 17). An omission at fr. 3.16 is corrected by an addition above the line by the original hand. o for ω is found at fr. 1.4, εἰ for τ at fr. 3.14, and οἰ for υ at fr. 3.16.

The distance between the fragments is unknown. To judge by parallel texts, e.g. ps.-Gal. *Int.* 16.1–9 (xiv 767.3–775.13 K. = 77.7–84.17 Petit), fr. 1 may have come close to fr. 2, while fr. 2 and 3 may have been quite widely separated.

Fr. 1 contains a list of eye conditions arranged by the part affected, while fr. 2–3 contain definitions of eye conditions, presented in the form of a questionnaire. Fr. 1 may itself have formed part of the answer to a preceding question, but this is quite uncertain. Medical questionnaires or catechisms, probably manuals for the use of doctors or medical students, are known from about 20 papyrus texts, dating mostly from the second to the fourth century. Three others deal with ophthalmology: P. Aberd. II, of the second century (MP³ 2342; M.-H.

Marganne, *L'Ophthalmologie dans l'Égypte gréco-romaine d'après les papyrus littéraires grecs* (1994) 104–11; P. Ross, *Georg. I 20*, also of the second century (MP³ 2343; Marganne, *Ophthalmologie* 112–12); and P. Strasb. gr. inv. 849, of the fourth century (MP³ 2345.01; ed. C. Magdeleine in I. Andolini (ed.), *Testi medici su papiro* (2004) 63–77). For such medical catechisms in general, see LXIV 4972 introd.; 5235, 5238, and 5239 above.

Fr. 2 contains a question about at least three types of eye inflammation, *τάραξις*, *ὀφθαλμία*, and *φλεγμονή*, followed by their definitions. The least damaged of these, that of *τάραξις*, consists of one sentence stating the symptoms and the causes of the disease. Causes are omitted in fr. 3, and may be included here to help distinguish between the different kinds of eye inflammation. Fr. 3 gives definitions of various corneal ulcerations, apparently arranged according to the degree of their severity.

The work represented may have been concerned only with eye conditions, like Galen's lost *On the Diagnosis of the Diseases of the Eye* (cf. B. Zäpser, *Galenos* 3 (2009) 107–12) or the *Ten Treatises on the Eye* of Hunayn ibn Ishāq. Alternatively, it may have had a larger scope, similar to that of the pseudo-Galenic *Introductio*. In any case, the short questions and the simple and clear definitions indicate that it was probably an introductory manual for beginning medical students or for any others interested in such matters.

Cf. in general Marganne, *Ophthalmologie*; J. Hirschberg, *Wörterbuch der Augenheilkunde* (1887); *Geschichte der Augenheilkunde* I (1899) 69, 85–7; *The Ophthalmology of Aetius of Amida*, translated by R. L. Waugh Jr (2000); H. Magnus, *Die Augenheilkunde der Alten* (1901) 498–588; for Latin equivalents, H. Nielsen, *Ancient Ophthalmological Agents* (1974) 90–92; on metaphors for eye conditions, F. Skoda, *Médecine ancienne et métaphore* (1988) 283–93.

Fr. 1

		 [
			] περι δ[ε	
			]ς, ὑπόχ[υ]ςις	
			]ωσις, μυσία-	
5	cic		]κανθός και	
			ἔγκλη) θιδες και	
			]ετο μιλαν	
			]ματα λεγου[
	c1		]τον ἀπό ε . [
10			] ἀπόρηξις [
			] και πρόπτ[ω-	
3 ὄπο	4]ω blotted	4–5 l. μυσίας	5–8 abraded on the left	10 l. ἀπόρηξις

Fr. 2

				[
				] τι ἔστιν τάραξις και τι ὀφθαλμία και [τι	
			φλεγμονή;		
			τάραξιν μὲν λέ]γουσιν ὅταν δ ὀφθαλμῶς [
			ἐ]πι δύο ἢ τρεῖς ἡμέρας τ . [
5			αι]τιῶν καρπῶν, κοριοσ[τῶν		
			ὀφθαλμ]ία δὲ ὅταν ἐ]γγύτη[ιαι		
			] ὑπὸ τῶος τῶν εν[
			] . [ . . . ] ομοενος [
			φλεγμ]ασην δὲ λέ]γουσιν		
10			ἐρ]υθρά ῥ. [
] . [
7 ὄπο	10 η [

Fr. 3

				]ται οὐκ αἶε δη[
			]α τοῦ ἡμέρος τω[
			τι ἐστ]ιν βοθρον;		
			κα]θαρόν ελκῦθριον κεντημα[ςι		
5			]ενον .		
			τι ἐστιν ἄργε]μον;		
			] το] μέλαν και κατὰ μὲν [
			] δὲ τὸ λευκόν ὑπέρυθρον . [
			τι ἐστιν νεφ]ελιον;		
10			ἐλκ]υθριον ἐπι τοῦ μελανος χ[
			τι ἐστιν ἀχ]λιδις;		
			] παραρηγία ἀέρι ἀχλιδιά]δει		
			τι ἐστιν ἐ]πικηγμια;		
			χ]εωόμενον ελκος ἀνάβαρ[τρον		
15			τι ἐστιν ἐ]πίπσιον;		
			] ποῶ ὑ' κυλογη] διὰ τούτου κ[
			] προσκαγορεύουσι .		
] . [
] . [

1 Trace above the first ε: from the line above? 2 υμενος 5 ενον 8 υπερυθρον
14 l. γινόμενον 16 l. πόου κυλλογή 17 σικι 17 σικι

Fr. 1 '... about (the pupil (?)) ... cataract ... short-sightedness ...; (about) the corners of the eye and ... tumours in the inner angle of the eye and (discharges (?)) ... the black of the eye ... they call ... (about the nerve descending) from the brain ... and prolapse ...'

Fr. 2 'What is irritation and what is ophthalmia and (...) what is inflammation?
'They call it irritation when the eye ... for two or three days ... responsible ... smoke, dust ...; and (here) i) ophthalmia when ... occurs in ... by one of the ... becoming (?) ...; they call it inflammation ... are red.'

Fr. 3 '... scars as ... the membrane ...
'What is an excavated ulcer?
'... a clean, small ulcer, (similar to) punctures, ...
'What is a white speck?
'... the black of the eye, and ... and reddish (on) the white.
'What is a cloud?
'... a small ulcer on the black of the eye ...
'What is a mist?
'... similar to misty air ...
'What is a bluster?
'An ulcer coming to be ... impure ...
'What is a hypopyon?
'... a collection of pus throughout ... (they) call ...'

Fr. 1 Classification of eye conditions. The conditions are listed in the nominative, and each affected part stands in the accusative, introduced by *περὶ*. The chapter on eye conditions in ps.-Gal. *Int.* begins with a similar catalogue (16.1 (xiv 767.1-768.10 K. = 77.7-78.17 Petri)), followed by brief definitions of most of the conditions mentioned. The papyrus appears to have the affected parts in a different order and to have a less detailed inventory. Cf. the shorter but more elaborate list in *Aët.* 7.2 (CMG VIII.1.254.31-256.3); also ps.-Gal. *Def. Med.* 326, 351 (xix 433.3-9, 436.17-437.2 K.); ps.-Sor. *Quaest. Med.* 343.2-3L Fischer; Paul. Nic. 31.9-16 Ieraci Bio (p. 96). In ps.-Sor., the list of eye conditions answers a question, but the answer does not (as in the present list) mention the part of the eye that is affected in each case. The last preserved section, on conditions affecting the optic nerve (9 n.), is likely to have come towards the end of the list, to judge by the *Introducō* and *Aët.* 7.2 (CMG VIII.1.255-27.8). There is no observable overlap with the other fragments, but the conditions discussed in fr. 3 may have been mentioned in the section on the black of the eye (7-9).

If the line length is approximately the same as in fr. 2 and 3, there may be about 17 letters lost on the left in each line.

1] ... [; the foot of an upright; an upright descending below the line (ρ, ι, or τ); an upright followed by the foot of a short descending oblique (κ); an upright followed by the foot of a short descending oblique (not κ, but η); or an upright followed by the lower end of a or ε; three specks on the line.

The first line must have contained the end of a set of eye affections. Apart from the categories mentioned below, ps.-Gal. *Int.* 16.1 (xiv 767.1-768.10 K. = 77.7-78.17 Petri) considers diseases of the whole of the ocular globe (ὁ ὀφθαλμὸς ἁπλοῦς), the corneo-scleral fold (τρυφάσιον), the sclera (*λευκὸν*), and the eyelids or the membranes (μυμῆραι). None of the many possible conditions seems a good fit for the traces.

2] ... Perhaps an *c* with its tail extended at the end of a sentence: there appears to be a trace of the loop at the lower left-hand corner. Alternatively, perhaps a *diple obliquata* used to divide sections: cf. 5235.

περὶ δὲ marks the start of a new section, probably concerned with diseases affecting the pupil (3 n., 4 n.);

περὶ δὲ τὴν κόρην is likely. Ps.-Gal. *Int.* 16.1 (xiv 768.6-8 K. = 78.13-16 Petri) has in this section ἕλας, ὑπόχυσις, γλαύκωσις, μυρίασις, φθίσις, κόχυσις, κληνωροπίασις, ἀμαυρώσις, ἰσθηθωσις, κωκωσάσις, ἡμερῶδης, μωσάσις, ἀσπίσις, and διαπύρισις. Of these, ὑπόχυσις, γλαύκωσις, μυρίασις, and φθίσις appear in all medical sources (i.e. ps.-Gal. *Int.* and *Def. Med.*, Orib., *Aët.*, Paul. Aeg., ps.-Alex. Trall., Leo Med., and Ioan. Act.), connected either directly with the pupil or with the vision in general: κόχυσις, κληνωροπίασις, and μωσάσις appear in most of them, while ἀμαυρώσις, a total impairment of the vision, is sometimes considered a disease of the optic nerve. Two of them are still legible here, ὑπόχυσις and κωκωσάσις or κωκωσάσις (4). The list may have included most, if not all of the most common conditions.

3] *c*. Of the remaining conditions ending in *-osis* commonly found in medical writings, γλαύκωσις, μωσάσις, φθίσις, κόχυσις, and ἀμαυρώσις could fit. See next n.

ὀφθαλμῶσις or ὀφθαλμῖσις. In the Roman period, ὀφθαλμῶσις was defined as a coagulation of a humour between the crystalline and the uvea (cf. e.g. Rufus ap. Orib. *Syn.* 8.49; (CMG VI.3 266.16-10)), and subsequently identified with the modern cataract. Since they are often considered together, γλαύκωσις appears a logical choice for the word preceding or following ὀφθαλμῶσις. On the two conditions, cf. e.g. Marganne, *Ophthalmologie* 100-103, 123-3; *PfPLe* 1 (1979) 199-214; *MHF* 36 (2000) 23-33; also K.-D. Fischer, *MHF* 35 (2000) 127-47; id. in S. Scococchia, L. Tossetto (eds.), *Linguae tertiae sed graeco et del latino iii* (2000) 69-75.

4] *μωσάσις*. Ps.-Gal. *Int.* lists three diseases of the pupil ending with this sequence: γλαύκωσις, ἀμαυρώσις, and ἰσθηθωσις. γλαύκωσις (cf. previous n.) is listed in all the medical sources. ἰσθηθωσις, which is mentioned only in the catalogue of the *Introducō* and is not explained in the chapter itself, is perhaps less likely to be mentioned here. ἀμαυρώσις, usually a total impairment of vision, is described in the lists as a disease connected either directly with the pupil or more broadly with the vision, and due either to an unknown cause or to a problem with the optic nerve, e.g. ps.-Gal. *Int.* 16.1, 10 (xiv 768.7, 776.8-9 K. = 78.15, 85-10-12 Petri); Paul. Aeg. 3.22.31 (CMG IX.1 185.15-16); *Aët.* 7.50 (CMG VIII.1.204.7-305.2).

4-5 μωσάσις [sic (l. μωσάσις) or possibly μωσάσις (l. μωσάσις)]. On *o* for *oa*, see Gignac, *Grammar* 1.275-7. For this condition, cf. ps.-Gal. *Int.* 16.1, 10 (xiv 767.5, 768.8, 776.12-14 K. = 77.11, 78.15-16, 81.15-7 Petri); *Def. Med.* 347 (xix 436.3-5 K.); *Aët.* 7.47 (CMG VIII.1.301.1-5); Paul. Aeg. 3.21.35 (CMG IX.1 187.4-9).

5] κωκωσάσις. The accusative indicates that this introduces a new section, on the diseases affecting the corners of the eyes. Before κωκωσάσις, one would expect περὶ δὲ γόκω, in 2; cf. 7 and 9. Ps.-Gal. *Int.* 16.1 (xiv 767.17-18 K. = 78.5-7 Petri) here again gives the most extensive list of the conditions affecting the angles of the eyes. They are specified in a separate section, between the diseases of the lids and those of the sclera (*λευκόν*), and include ἑγκωσθίς, ἀγκωθίς, πτερόριον, βύσις, πρῶβωσις, ἀγκωσθίς, and ἀγκωσθίς. *Aëtius* mentions in his introduction, 7.2 (CMG VIII.1.255.17-17), only three of them, ἀγκωσθίς, ἑγκωσθίς, and βύσις, but in 7.60 and 65 (CMG VIII.1.313.3-10, 317.3-5), he regards πτερόριον and ἀγκωσθίς as also affecting the corners of the eyes. Ps.-Gal. *Def. Med.* 351 (xix 436.17-18 K.) treats them together with the diseases of the eyelids: περὶ τὰ βλεφάρω καὶ τοὺς κωκωσθίς συνικταῖα πύθη τρυφῶν. So here we may consider *εωσάσις* [τῆς βλεφάρω, as these are commonly associated with the angles of the eyes.

6] ἄνωκωσθίς καὶ. Probably καὶ [ἀνωκωσθίς, as these two conditions are often named together; cf. *Aët.* 7.2 (CMG VIII.1.255.16), Paul. Aeg. 3.22.20 (CMG IX.1 178.18-28), ps.-Alex. Trall. Oc. 2 (Putschmann, *Nachtigle* 148.3), Ioan. Act. *Diagn.* 2.7 (446.5 Ideler). For ἑγκωσθίς, cf. 5240 f. 2.3ff. n.

7] *ε*ρο μωσάσις. As this is the beginning of a new section concerning 'the black of the eye', we expect περὶ δὲ. The first trace is a short vertical line in the line on the edge: δ is not suggested, but in view of the damage to the surface, it is not excluded. *μωσάσις* in medical texts is used in a broad sense and refers to the iris as well as the section of cornea that covers it, so that diseases of the *μωσάσις* may be attributed either to the iris or to the cornea; K. = 78.19-13 Petri) does not list any diseases of the cornea, but instead names 17 conditions relating to the iris (*ἱρις*). *Aëtius* in his introduction, 7.2 (CMG VIII.1.255.17-21), distinguishes between diseases of the cornea and those of the iris, but later, e.g. 7.37-30 (CMG VIII.1.273.18-177.6), describes the former as affecting the black of the eye (*μωσάσις*) or the iris (*ἱρις*). The conditions most commonly attributed to the black of the eye are

ἀρχισμο, βελήριον, κολομα, ἀχέει, ψέφαλον, ἑπίκουρα, φλεῖται, ἀλλή, λένουσα, ὑπόσιον, and various forms of πρόστυχον (μυοκέφαλον, σταφύλιουσα, φλος, μέλος; cf. e.g. Paul. Aeg. 3.2.22 (CMG IX.1 179.27 180.1)).

8-9 *ματα λέγουσι*. At the beginning, *κοιλούμα*, *ἑπίκουρα*, *σταφύλιουσα*, and *λεκούμα* may be possible, preceded by *ἄ*; *ὀφθαλμίσματα* is perhaps less likely as this condition is usually believed to affect the white of the eye (e.g. ps.-Gal. Int. 16.1, 7 (xiv 768.1, 773.7-10 K. = 78.8, 82.22-83.1 Petiti)) or the conjunctiva (e.g. Aët. 7.22 (CMG VIII.2 270.4-7)). On the kinds of *staphyloma*, cf. e.g. Aët. 7.36 (CMG VIII.2 286.18-287.13), and for the expression, cf. 5243.3 iii 13-14 *πρὸς* ἢ *ἐπιπροσπίουσι* ὀφθαλμίσματα; Gal. Tim. Pr. Nat. 17 (vii 735.3-10 K.) τὰ δὲ σταφύλιωματα κοιλύμα; also ps.-Alex. Tract. Oc. 1 (Puschmann, *Nachtigall* 152.3-6) τὰ καλομήλου σταφύλιωματα πρὸς αὐτὸν ἔχει διαφορεῖα. Similar phrases include e.g. in Aët. 7.7 *ἡ λογιστὴ δὲ μείζωνος, ἡ δὲ γνάθικος λογιστὴ* (CMG VIII.2 235.13-14, 26).

9] τὸν ἀπὸ ε . [; probably *πρὸς* ἄξ], since the accusative indicates the beginning of a new section. The condition mentioned in the next line and introduced by this heading belongs, according to ps.-Gal. Int. 16.1 (xiv 768.9 K. = 78.16 Petiti), to the conditions affecting the *uōros* of the eye, i.e. the optic nerves (Gal. Caus. Symp. 1.2 (vii 88.7-89.2 K.) = Heroph. Ths von Staden (p. 103); Orib. Coll. Med. 25.57.8 (CMG VI.2.1 84.8-11)). The optic nerve is described by expressions such as τὸ ἄγκυράκιον καταφθόρισον ἐπὶ τῶν ὀφθαλμῶν νεύρον (Gal. loc. cit.) or ὁ διατέγων ἀπὸ τοῦ ἄγκυράκιου καὶ μήτρως πόρος ἐπὶ τῶν ὀφθαλμῶν (ps.-Gal. Int. 16.11 (xiv 776.17-18 K. = 85.21-2 Petiti)) or τὰ δὲ ἄγκυράκιον καταφθόριον νεύρα ἐπὶ τῆς χιρᾶς τῶν ὀφθαλμῶν (Aët. 7.1 (CMG VIII.2 254.1-2)). See also Gal. Nerv. Dis. 2.5 (ii 83.6-11 K. = 27.4-10 Garofalo). We may then restore here *ἐπιπροσπίουσι*, then e.g. *πόρος*, perhaps preceded by a particle.

10-11 | ἀπόρρηξις (l. ἀπόρρηξις) || | καὶ πρόστυχισις. On the use of single rather than double *ρ* in ἀπόρρηξις, see Cignac, *Grammar* 136. *ἀπόρρηξις* is the first of the conditions affecting the optic nerve mentioned by the *Introductio* (16.1 (xiv 768.9-10 K. = 78.16-17 Petiti)), ἀπόρρηξις, παρήμωσις, σήμωσις, ἑλακωσις, ἀβάρκωσις; cf. Int. 16.11 (xiv 776.16-17 Petiti) = 85.20-86.1 Petiti). Two of these conditions, *σέμωσις* and *παρήμωσις*, are mentioned by Leo Med. Sym. 337-8 (149 Emertina), while *ἑλακωσις* and *ἀβάρκωσις* are not usually associated with the optic nerves. Aëtius (7.2, 50 (CMG VIII.2 235.27-8, 304.13-15)) attributes *ἀμαύρωσις* to a paralysis, an obstruction of the optic nerve, or a thickening of the coats of the optic nerve; he also relates *ἀμυλωσις* (7.49 (CMG VIII.2 303.9-12)), among other causes, to some changes in the optic nerve.

πρόστιχον or *πρόστιχον πρόστιχον*, usually designates either a protrusion of the tunic of the uvea (*ἀνορέχεις*, often assimilated to the iris) through a wound or an ulcer of the cornea (e.g. Paul. Aeg. Int. 3.2.22 (CMG IX.1 179.27-180.1)), or a prolapse of the entire eye (Aët. 7.26 (CMG VIII.2 272.20-27)), resulting from a violent blow to the head. According to Galen, *UP* 10.8 (ii 797.17-798.8 K. = ii 82.20-83.1 Helmeirici), a prominent (*πρὸςενέτερος*) eye results from a rupture of the muscle surrounding the optic nerve or of the optic nerve itself, or from a stretching of the optic nerve following a paralysis of the muscle that holds it. *πρόστιχον* could perhaps have been used here to designate such a condition.

As *providentia* can be the consequence of a violent inflammation that leads to a rupture of the eyeball (Cels. 6.6.1D, 6.6.8G (CML 1 259.14-17, 264.21-3)), one might perhaps restore *ῥήξις* καὶ πρόστυχισις; ps.-Alex. Tract. Oc. 1 (Puschmann, *Nachtigall* 150.30-31), on ulceration of the tunics of the eye and *providentia*, has the sequence *ῥήξις* καὶ πρόστυχισις.

Alternatively, one could suppose that *ἀπόρρηξις* was the only condition of the optic nerve mentioned. A new section would then have started after it, and *πρόστιχον* would belong to that section. It could have been concerned with the conditions affecting the whole eye, as those relating to the iris or cornea were listed earlier. One may supply e.g. *περὶ τὸν ὄλον ὀφθαλμῶν* cf. ps.-Gal. Int. 16.1 (xiv 767.2 K. = 77.8 Petiti), although there the conditions affecting the whole eye come at the beginning. But this is probably too long; cf. on fr. 2-3.

Fr. 2-3

The left- and right-hand margins are not preserved, but fr. 2.3 as supplemented indicates that the questions were indented by the width of about five letters. The minimum extent of the loss on the right is given by the probable *χ(ε)ύμετον* at fr. 3.10. The right-hand margin is not likely to have stood significantly further to the

right; cf. fr. 1.7-8 n. The line length will then have been about 13-13.5 cm. Cf. also fr. 2.1-2 n.

Fr. 2

1-2 Question. The beginning of ps.-Gal. Int. 16.1 (xiv 767.2-4 K. = 77.8-10 Petiti) provides the best parallel: *πῶς δὲ περὶ μὲν τὸν ὄλον ὀφθαλμῶν συνέταται τὰς ἴσχυρας, ὀφθαλμῶν, ἀνορέχεις, ἐπιπροσπίουσι* (Petiti. cf. ven. lat.: *ἀπόρρηξις, φλεγμονῆν* cod.), *ἀσθενῶν, ἡφίσταται* (vanl. Cf. Ioan. Act. *Diagn.* 2.7 (444.3-1 Ideler); also Paul. Aeg. 3.2.2.2, 3 (CMG IX.1 171.16-172.3); ps.-Alex. Tract. Oc. 1 (Puschmann, *Nachtigall* 140.2-3) *ἄλλως ἢ ὀφθαλμῶν, χύματος, καὶ ἰσχυρίας*; similarly, Hunayn ibn Ishāq, *Ten Treatises* 6 (Mejerhoff (1928) 55) *ἄλλως ἢ ὀφθαλμῶν, καὶ χύματος*.

To judge by the assumed line length (fr. 2-3 n.), a further condition may have been lost at the end of line 1: *καὶ ἴ ... καὶ ἴ*. Perhaps it was *ἀνορέχεις* cf. ps.-Gal. Int. 16.1 (xiv 767.3 K. = 77.8 Petiti). *χύματος*, not included here by ps.-Gal. Int., is less likely but not impossible; cf. also Aët. 7.5 (CMG VIII.2 257.13). But an additional definition would not be easy to accommodate in the space available at 8-9.

3 *φλεγμονή*. The supplement is not in doubt, as this is the only condition included in this category in the ps.-Galenic list that ends in *ε* cf. 9.

3E *τάρραξις* and *ὀφθαλμῶν*. The presentation appears to be closest to that of Paul. Aeg. 3.2.2.2 (CMG IX.1 171.16-24), for whom *τάρραξις* is short-lived and produced by external causes, while *ὀφθαλμῶν* is a sort of *τάρραξις* but lasts longer and may be produced by internal (hidden) as well as external causes. For *τάρραξις*, the remains of a description of the symptoms (4) and references to the duration of the condition (4) and its causes (5) can be recognized, and for *ὀφθαλμῶν*, the beginning of the description (6) and a reference to the cause (7); WBH suggests that we should expect the duration to be mentioned, either in the lacuna at 6-7; if the order of presentation was the same in each case, or after the causes. For detailed discussion, see the notes below.

3-6 Definition of *τάρραξις*.

3 *τάρραξις μὲν ἄλγιστον ἀνάνη δὲ ὀφθαλμῶν* [Cf. ps.-Gal. Int. 16.1 (xiv 768.10-12 K. = 78.17-20 Petiti) *τάρραξις μὲν ὅσον ἄννα καὶ ἀνορέχεις ἢ ὀφθαλμῶν ἀνορέχεις καὶ μήτρως ἐπὶ τῶν ὀφθαλμῶν καταστρεφά τάλως*; Paul. Aeg. 3.2.2.2 (CMG IX.1 171.17-18) *ἡ μὲν τάρραξις ὑγρῆται ἐπὶ τῶν ὀφθαλμῶν καὶ θομαστὴ ἐν ἔρεσις περιεργῶ καὶ πᾶσι φύσιν*.

4 *ἢ ἴδι ὀδι ἡ τρὰς ἡμέρας*. Eye irritation is supposed to clear on its own after two or three days. This is implicit in Paul. Aeg. 3.2.2.2 (CMG IX.1 171.17-24), where *ὀφθαλμῶν*, as a worsening of *τάρραξις*, lasts three to five days, while *τάρραξις* itself *λύεται τὰχιστα χωρὶς αἰτίας*. Cf. also Aët. 7.3 (CMG VIII.2 256.4-20).

τ. | [The final trace is an upright. WBH suggests τριῶν ἡμερηχόντων τῶν αἰτίων cf. 5 n.]

5 *καπνῶν, κομποτῶν*. The singular *κομποτῶν* is less likely; the plural may denote different kinds of smoke and dust. These are listed among the causes of the disease by Orib. *Exp.* 4.13 (CMG VI.3 444.19-20) *ὅτι τὸ καπνῶν γυμνάσιον καὶ ἡρομακίον ἢ ἑλακωσις, ἢ ἀνορέχεις ἐπιδοτερον αὐτῆς*; Aët. 7.3 (CMG VIII.2 256.4-6) *ὅτι τὸ καπνῶν γυμνάσιον καὶ ἡρομακίον ἢ κομποτῶν ἢ τῶν ἐξ ὄλων παραπλησίον*; cf. Paul. Aeg. 3.2.2.2 (CMG IX.1 171.18-19) *ὅτι τῶν ἑλακῶν αἰτίων γυμνάσιον, ὄλον ἄλγος, καπνῶν, κομποτῶν, ὀλοῦν* Cf. Hunayn ibn Ishāq, *Ten Treatises* 6 (Mejerhoff (1928) 55.3-6). To judge from these passages, at least one more causative agent is likely to have followed. WBH suggests e.g. *γυμνακίον* as the last of three causes (cf. 4 n.). The list will then be similar to those in Aëtius and Oribasius, except that the former adds ἢ τῶν ἐξ ὄλων παραπλησίον and the latter ἢ ἀνορέχεις ἐπιδοτερον αὐτῆς.

6-8 Definition of *ὀφθαλμῶν*. The surviving words do not correspond closely to other passages on this disease. Galen defines *ὀφθαλμῶν* as *ἀσθενῶν τὸν περισσοῦν καὶ περιμετρῶν καλοῦσιον χύματος* (*Comp. Med. Lec.* 4.3 (vi 711.8-9 K.) καὶ φλεγμονῆ ... τὸν ἐπιπροσπίουσι ὄλονος τὸν περισσοῦν ἐπὶ τῶν ὀφθαλμῶν (Mull. *Diff.* 13 (vi 896.12-897.7 K.); cf. *MMG* 2.1 (vi 77.12-14 K.)), and see Newton on *De medicina diutina* 8.1a (536.22 N.). For ps.-Gal. Int. 16.2 (xiv 768.12-15 K. = 78.20-79.2 Petiti), *ὀφθαλμῶν* ... *ἄννα δὲν τὰ δεικνὸν ἀνορέχεις ἢ καὶ τὰ βλεφάρων ἐπιμακίονα μὲν τὸ ἴδι τὸ μὲν τῶν βλεφάρων ἐπιμακίονα καὶ τῶν τῶν χειρῶν ἐπιμακίονα ἐπιδοτερον*. Paul. Aeg. 3.2.2.1 (CMG IX.1 171.20-22) considers *ὀφθαλμῶν* an aggravation of *τάρραξις*, and Ioan. Act. *Diagn.* 2.7 (444.11-12 Ideler) adds that it is caused by a light and acrid flow; for Hunayn ibn Ishāq, *Ten Treatises* 6

(Meyerhof (1928) 55.7-34), ὀφθαλμία is due either to a worsening of τὸ ρόδιξ or to an internal cause, i.e. 'a superfluity which flows down (from the head) into the conjunctival tunic and causes it to swell'. Cf. also Aët. 7.4 (CMG VIII.2 256.2-7).

For the possibility that another definition is to be accommodated before 9 φλεγμονῇ ἢ ἐξέλιξουσι, see 1-2 n.

6 ὀφθαλμία δέ ἐσ. ἄνεθ. Cf. Kühner-Gerth 1 40ff. Less probably λέγεται is understood from the preceding λέγονται cf. Mayer, *Grammatik* II, 3 4ff.

7 [Ἐπιγράφου]: WBH suggests τὸ ρόδιξ as the subject (cf. Paul. Aeg. 3.22.2 (CMG IX.1 171.20-21) καὶ ἡ ὀφθαλμία δὲ τὸ ρόδιξ ἐστὶ τὸ ἐξόν). Followed by a reference to the duration, ἐπὶ πλεονεξῆς ἡμέρας: cf. 5ff. n.

7 τῶν ἐπ. Perhaps ἐξέλιξου or ἐξίλιξ (ἴριος) ἔξωθεν, followed by αἰρίων, as the causes of ὀφθαλμία were thought to be internal as well as external. Cf. Alex. Trall. 2 (ii 55-65 P); Paul. Aeg. 3.22.2 (CMG IX.1 171.21).

8 ἵσμενος: ἐο. γλιόμενος (or γει- cf. fr. 3.14) may form part of a description of the state of the eye, agreeing with ὀφθαλμῶσι σὺν ἡμῖν.

9-10 Definition of φλεγμονῆ.

9 Ἄfter ὀφθόμενος, probably ἔστιν.

10 ἔπιθρῶθ ἢ. Only ps.-Gal. Int. 16.2 (xiv 768.15-17 K. = 79.2-4 Petit) and *Def. Med.* 337 (xix 433.10-12 K.) give a precise description of φλεγμονῆ as an eye disease. In the first passage, the definition runs φλεγμονῆ δέ ἐστιν ἐπίτασις τοῦ τε εὐφρατισμοῦ καὶ τῆς ἐπιτάσεως τῶν βλέφαρων, ὡς ἐπιπόσιος ἀνάβλεπαι, and in the second φλεγμονῆ μὴ οὐδὲν ἔστιν αἰθέριον περὶ τοῦ ὀφθαλμοῦ μὲν ἑπιφύωσις καὶ πῶληξ θερμιας καὶ δυνεσχῆς καὶ πυκνῶν γινόμενος. We may restore e.g. τὸ [βλέφαρον θερμὸν καὶ ἐπιφύωθ] ἢ.

Fr. 3

1-2 End of a definition. Cf. ps.-Gal. Int. 16.9 (xv 775.4-11 K. = 84.7-14 Petit) οὐδὲ δέ ἐστιν ὅταν ἐπὶ τοῦ μύτου τοῦ ὀφθαλμοῦ ἔξ ἑλευος βαθεῖς ὄντος παχέτης ἴμενος ἐπιπένηται καὶ ἡ χροία λευκονόρα φαίνεται ... λευκωμα δὲ πᾶσι μὲν ἐστὶν οὐδὲν, διαφέρει δὲ τῷ ἔξ ἑλευόσιος μεγάλῃ (i.e. WBH) οὐδὲν μέλιον καὶ παχέτησιν ἐπιπένησι ἐπὶ τῆς ἴριος, ἢ οὐδὲν λευκωμα. Perhaps ἐο. οὐδὲς μὲν λέγοντες ὅταν ... καὶ παχέτησιν ἐπιπένησι ἐπὶ τῆς ἴριος, ἢ οὐδὲν λευκωμα. For ἑλευόσιος μεγάλῃ, see also ἢ [λευκονόρα δια τῆς] τοῦ ἴμενος τοῦ ἐπιπένητος φαινομένου. For ἑλευόσιος μεγάλῃ, cf. Aët. 8.12 (CMG VIII.2 418.16); μεγάλῃ οὐδὲν μέλιον καὶ παχέτησιν is transmitted in ps.-Galen, but word order and sense are both unsatisfactory (WBH). On scias, cf. also Aët. 7.39 (CMG VIII.2 290.13-19); Paul. Aeg. 3.22.24 (CMG IX.1 181.1-20); Ioan. Act. *Diagn.* 2.7 (447.6-8 Idelet); Hunsay ibn Ishāq, *Ten Treatises* 6 (Meyerhof (1928) 64.23-6); Magnus, *Augenheilkunde* 528-9; Hirschberg, *Geschichte* 1 85-7.

2 τοῖς. E.g. τῷ [ερατοειδεῖ] cf. Aët. 7.39 (CMG VIII.2 290.14), where the cornes is mentioned; *Humor. Morb. Diff.* 13 (vi 876.18-877.2 K.) τοῦ ἐπιπεφύωτος ἴμενος τῷ κερατοειδεῖ. Cf. also 4-2 n.

3-5 Definition of βόθριον. Restore e.g. κοῖλον καθάρῳ ἐλευθέρῳ κεντήματι στρογγυλῷ ἢ ἀγωνιστῷ. Cf. esp. ps.-Gal. Int. 16.7 (xiv 774.7-9 K. = 83.17-19 Petit) βόθριον δέ ἐστιν ὅπως κοῖλον καθάρῳ, στρονῶν, κεντήματι στρογγυλῷ ἴμενος, βαθύτερον ἐλευθέρῳ (but cf. 4 n.); Aët. 7.29 (CMG VIII.2 274.20-21) βόθριον μὲν καλεῖται ὄταν ἐπὶ τοῦ μέλανος γάντηα κοῖλα καὶ ἐπὶ σπῆσι καὶ καθαρά ὕλη κεντήματι ἴμενος; also ps.-Gal. *Def. Med.* 333 (xix 434.6-7 K.); ps.-Alex. Trall. 0c. 1 (Puschmann, *Nachträge* 148.7-8); Paul. Aeg. 3.22.2 (CMG IX.1 179.3-4); Leo Med. *Syn.* 3.30 (143 Emmerin); Ioan. Act. *Diagn.* 2.7 (446.20-22 Idelet); ps.-Sor. *Quaest. Med.* 349f. Fischer; *Exor.* 8.3 (428.4-5 Natchanson); Hunsay ibn Ishāq, *Ten Treatises* 6 (Meyerhof (1928) 64.15-16); Magnus, *Augenheilkunde* 525.

4 ἐλευθέρῳ. Contrast ps.-Gal. Int. 16.7 (xiv 774.7-9 K. = 83.17-19 Petit) βόθριον δέ ἐστιν ὅπως ... βαθύτερον ἐλευθέρῳ. The βόθριον is everywhere said to be deeper than the κοῖλον; cf. Aët. 7.29 (CMG VIII.2 274.22-3). Paul. Aeg. 3.22.2 (CMG IX.1 179.4-5). So ps.-Galen probably wrote βαθύτερον κοιλώμενος; we expect a contrast to be drawn with another particular kind, not quite generally and unhelppfully with 'a small ulcer'. ἐλευθέρῳ may be an intrusive gloss (WBH).

6-14 These four conditions (ἄργωμα, νεφελιον, ἄχλος, ἐπίτασιμα) appear in the same order in ps.-Gal. Int. 16.7 (xiv 775.17-774.7 K. = 83.8-17 Petit); ps.-Gal. *Def. Med.* 330-32 (xix 433.17-414.5 K.) has the sequence ἄργωμα, νεφελιον, ἐπίτασιμα, with no separate entry for ἄχλος, νεφελιον, ἄχλος, and ἐπίτασιμα; see treated together in Aët. 7.27 (CMG VIII.2 273.18-27.12), and ἄργωμα in the following chapter (CMG VIII.2 274.13-19).

7-8 Definition of ἄργωμα. Restore e.g. ἐλευθέρῳ κατὰ τὸ μύλον καὶ τῶν [τὸ μύλον λευκῶν] φαινομένων, κατὰ δὲ τὸ λευκῶν ἐπιπένητον. Cf. ps.-Gal. *Def. Med.* 330 (xix 433.17-18 K.) ἄργωμα ἐστὶν ἑλευθέρῳ κατὰ μὲν τὸ μύλον λευκῆ φαινομένη, κατὰ δὲ τὸ λευκῶν ἐπιπένητον; also Aët. 7.28 (CMG VIII.2 274.13-15) ἄργωμα ἐστὶ τὸ κατὰ τῶν τῆς ἴριος κίλων γινόμενον ἐλευθέρῳ, ἐπιπένητος ὁ μὲν τῷ τὸ λευκῶ ὄδ ὀδ ἢ τὸ μύλον, λευκῶν φαινομένων; Paul. Aeg. 3.22.21 (CMG IX.1 179.5-7) ἄργωμα δὲ τὸ ἐπὶ τῆς ἴριος κίλων γινόμενον ἐπιπένητον τῇ καὶ τῆς ἴριος τῆς ἰριος ἐνενοθεῖ φαίνεται, κατὰ δὲ τὸν ὄνον λευκῶν. ps.-Sor. *Quaest. Med.* 346f. Fischer; ps.-Alex. Trall. 0c. 1 (Puschmann, *Nachträge* 148.17-20); Leo Med. *Syn.* 3.35 (141 Emmerin); Ioan. Act. *Diagn.* 2.7 (446.23-6 Idelet); Hunsay ibn Ishāq, *Ten Treatises* 6 (Meyerhof (1928) 64.3-12); Magnus, *Augenheilkunde* 525; Margraue, *Ophthalmologie* 175; GMF II, 5 in 6-7 n.

10 Definition of νεφελιον. Restore e.g. ἐπιπένητον ἐλευθέρῳ ἐπὶ τοῦ μέλανος γινόμενος (I. γυ-). Cf. Aët. 7.27 (CMG VIII.2 273.20-21) on the ἄχλος (n. 2). On the νεφελιον, cf. ps.-Gal. *Def. Med.* 331 (xix 434.1-3 K.) νεφελίον ἐστὶν ἀχλὺς ἢ ἑλευος ἐπιπένητος ἐπὶ τοῦ μέλανος, ἡ νεφελίον ἐστὶν ἑλευος ἐπιπένητος καὶ μικρῶ μύλον καὶ λευκῶν; also ps.-Gal. Int. 16.7 (xiv 774.3-3 K. = 83.11-12 Petit) νεφελιον δέ ἐστιν ἑλευος ἐπιπένητος καὶ μικρῶ μύλον ἄργωμα καὶ λευκῶν; Aët. 7.17 (CMG VIII.2 273.25-31); ps.-Gal. *Rem. Parac.* 2.4,6 (xiv 417.8-9 K.); Paul. Aeg. 3.22.24 (CMG IX.1 181.3-3); ps.-Sor. *Quaest. Med.* 347f. Fischer; ps.-Alex. Trall. 0c. 1 (Puschmann, *Nachträge* 148.13-16); Leo Med. *Syn.* 3.26 (144 Emmerin); Hunsay ibn Ishāq, *Ten Treatises* 6 (Meyerhof (1928) 63.35-3); Magnus, *Augenheilkunde* 524; Hirschberg, *Geschichte* 1 86-7; Skoda, *Mémoires* 283-4.

12 Definition of ἄχλος. Restore e.g. οὐδὲ λευκονόρα παραπίναξι δέρι ἀχλὺς ἴμεξ; then perhaps ἐο. περὶ τὸ μύλον (possibly too long). Cf. ps.-Gal. Int. 16.7 (xiv 774.3-5 K. = 83.12-14 Petit) ἀχλὺς δὲ ἐστὶν περὶ ἄλλο τὸ μύλον ἀπὸ ἐλευόσιος ἐπιπένητος οὐδὲν λεπτότατῆ δέρι ἀχλὺσιος παραπίναξι; Aët. 7.27 (CMG VIII.2 273.20-23) ἢ μὴ γὰρ ἀχλὺς ἐπιπένητος ἐπὶ τοῦ μέλανος γινόμενον, παραπίναξι ἀχλὺσιος δέρι τῷ χρομῶτι κυανώδης, πᾶσι τόνον ἔπιπνομα καὶ λευκῶν; ps.-Alex. Trall. 0c. 1 (Puschmann, *Nachträge* 148.10-12); Leo Med. *Syn.* 3.27 (143 Emmerin); Hunsay ibn Ishāq, *Ten Treatises* 6 (Meyerhof (1928) 63.39-42); Magnus, *Augenheilkunde* 524; Hirschberg, *Geschichte* 1 86-7. There is no entry for ἄχλος in ps.-Gal. *Def. Med.*, where the term is used of a νεφελιον (10 n.).

14 Definition of ἐπίτασιμα. Restore e.g. κατὰ τὸ μύλον γινόμενος (I. γυ-); ὄπως δεδιάρθῃ, ἀνεπαρόξ. Cf. esp. ps.-Gal. *Def. Med.* 332 (xix 434.4-4 K.) ἐπίτασιμα ἐστὶν ἑλευος ἐξερσάρθῃ κατὰ τὸ μύλον ἐπιπένητον καὶ μὴ μέλανος. Paul. Aeg. 3.22.21 (CMG IX.1 179.7-9) τὸ δὲ μέλανωμα ἐστὶν ἐπιπένητον καὶ ἀκάθαρτον καὶ ἐξερσάρθῃ, ὅταν ἀνεπαρόξηται; ὡς πᾶσι δέρι πρὸ τῆς ὀφθαλμῶσι. As both authors use it, ἐξερσάρθῃ may be preferable to ἵμερον (only in Paul) at the end; there is no room to be room for both. Cf. also ps.-Gal. Int. 16.7 (xiv 774.5-7 K. = 83.14-17 Petit), Aët. 7.27 (CMG VIII.2 273.25-7), ps.-Sor. *Quaest. Med.* 348f. Fischer; ps.-Alex. Trall. 0c. 1 (Puschmann, *Nachträge* 148.23-6), Ioan. Act. *Diagn.* 2.7 (446.25-8 Idelet), Hunsay ibn Ishāq, *Ten Treatises* 6 (Meyerhof (1928) 64.1-13); Magnus, *Augenheilkunde* 524-5.

16-17 Definition of ὕπνωση. See the following notes for the reconstruction. Cf. esp. ps.-Gal. *Def. Med.* 338 (xix 434.17-18 K.) ὕπνωσις ἢ ὄντι ἐκτὸς κρύσταλλου σπῆον κατὰ τὸ μύλον μετὰ φλεγμονῆς, ἠπὸς τῆς ἴριος, παραπίναξι ὄντος; Paul. Aeg. 3.22.23 (CMG IX.1 180.12-14) ὕπνωσις ἐστὶν κερρατοειδὲς ἀπὸ τῶν γίνεσθαι ποτὶ μὲν δὲ βόθριον, ποτὶ δὲ ἐπιπένητος, ἕλητῃ προσκολλησάσης τοῦ πῆσι κατὰ τὸ ὄφθημα; δὴ καὶ τὸ πῆσιος ὄντος προσκολλησῶσιν (cf. ps.-Gal. *Rem. Parac.* 2.4,3 (xiv 409.9-12 K.) on the ἐπιπένη); also Aët. 7.30 (CMG VIII.2 275.10-12) πῆσιος δὲ ἐκστῆσθαι πῆσι καὶ τὸ ἴμενος τῶν ἴμενος ἀνεπαρόξητος ἐπὶ καὶ δὲ ἄλλο τὸ κερρατοειδὲς ἀπὸ τῆς ἴριος ὕπνωσις, ὕπνωσις ἐστὶν λέγονται τὸν ὀφθαλμῶν, ps.-Gal. Int. 16.8 (xiv 774.9-9 K. = 84.3-4 Petit), ps.-Sor. *Quaest. Med.* 354f. Fischer; ps.-Alex. Trall. 0c. 1 (Puschmann, *Nachträge* 150.6-9); Leo Med. *Syn.* 3.39 (143 Emmerin); Ioan. Act. *Diagn.* 2.7 (447.2-5 Idelet); Hunsay ibn Ishāq, *Ten Treatises* 6 (Meyerhof (1928) 64.5-11); Magnus,

Augenheilkunde 526; Hirschberg, *Geschichte* I 85; Skoda, *Mitaphore* 287-8; Marzanne, *Ophthalmologie* 142-4.

16 πωία'υ' αλωγοή, I πωον αλωγοή. Cf. for the spelling Cignac, *Gummar* I 198-9 (u for o), 169-70 (ενωδ- for αωδ-), αλωγοή πωον is used by ps-Gal. *Def. Med.* 338 (xix 434.17-18 Kc.), quoted in 16-17 n. It is unclear what preceded: we might expect a description of the shape somewhere, but παρασχημα όσχη and όσχη προσοικετία are too long, while όσχη όμοία or όσχηία seems too short. Perhaps κατά τό μέλαν], a little more generously spaced than at the start of 14; cf. ps-Gal. *Def. Med.* (WBH).

διά τούτου κ]. We expect a reference to the black of the eye (μύδα) or the cornea (σφαρασούδη). WBH suggests emending to διὰ τοῦ κίτρουσουλίου (the second row being due to ditography), or (preferably) δι' έλιου τοῦ κίτρουσουλίου. Cf. *Act.* 7.30 (CMG VIII.2 275.10-12), quoted in 16-17 n.

17] προσεγοροόειος. Cf. Paul. *Ag.* 3.22.33 (CMG IX.1 180.12-14), quoted in 16-17 n. Before it, e.g. τινέ δι' όσχη] might fit the line beginning, but it is uncertain what preceded (cf. 16 n.).

M. HIRT

5242. THICKENINGS OF OILS

28 4B.61/G(4-7)b

6.1 x 17.8 cm

Second century
Plate III

The top of a column with parts of thirty lines, written along the fibres. The upper margin is preserved to a depth of 2.2 cm and the left-hand margin to a width of 0.3 cm. On the back, upside down in relation to the text on the front, an account with amounts in arouras and artabas.

The text is written in an informal hand, leaning to the right. δ has a broad base; η is h-shaped; κ has a curved lower arm descending from the middle of the upper arm. Cf. P. Palau Rib. 50, of 175, P. Fud Univ. 19 (*GLH* 15b), of 145/6, and XXXVIII 2857, of 134.

A blank space marks the beginning of a new section (22). εἰ is written for long (19) and once exceptionally for short (13). Iota adscript is not written (10, 20). Numerals are sometimes marked by supralinear bars: cf. 5, 16-17, 26, 28. Case endings are sometimes confused: cf. 4, 16-17 n.

The text gives three sets of instructions for thickening, the first stage in the preparation of perfumed oils. Each of the oils to be prepared is perfumed with flowers: iris (1-12), rose (13-22), and lily (22ff.). There are parallels in Dioscorides, noted in the commentary (cf. especially 1-12 n.), but the order in which the three oils are treated does not correspond to that of Dioscorides. If the order was alphabetical throughout, as in the preserved part, then the *οινάνθων* and *ναρκίσκων*, both present in Dioscorides (I.46, 53 (I 44.20-45.2, 49.14-25 W)), were not included. It is unlikely, in view of the differences, that the papyrus text was drawing on Dioscorides. It is more probable that the two authors have a common source. PSI inv. 3011 (MP³ 2388) is another papyrus text with close correspondences to Dioscorides: cf. 5224-6 intro.

A point of particular interest is the use of μήτρια and άσκαρα as units of weight: cf. 4-5 n.

5
10
15
20
25
30

άλλη στΰψις· όμφάκιον
έλαιον έκπιάνας π[ε-
φραμένον δδ[α]τι ο, []
έφη έυλοβαλέμιον [μη-
τίσι β άσάρου 5· εἰτι α ζξ-
λων τδ έυλοβαλεμιον
προεέβαλε καλμιου
κεκομμένου μήτρια []
και έμύρνη χόνδρον έν
οίνω παλαιώ εύάθει, [εἰτα
άφελών άφήθηον τδ έ-
λαιον. βρέχε άσάυτις.
στΰψις ροδίνου· έλα[ιου
όμφάκιον εκπιλινον
ώ[ς] αύτως και έφη με[τά
σχόνου μήτρια β άσάροις
δ εἰς τδ ήμιον κεκο[μμέ-
νοις και πεφυραμέν[οις
ύδατι· έφη δέ άνακινών
τη χειρι και άφήθη[σε]
χρώ· προς πολλά δέ ε[φαρ-
μάει. 5· στΰψις κουίνου
έλαιον όμφάκιον []
πρώτην εκπιάνας ή[]
δατ]ε έφη μετά καλμιου
μητιου άσάρου 5· εἰς τδ
ήμιον μερ[ος] . [.] []
άσ[αρ] .] δ []
· α []
·] []

2-3 l. πεφυραμένον 4 l. έυλοβαλέμιον 7 l. προσέβαλε 11 l. άφήθηον 13 l. στΰψις
16 l. μητιου β άσάρου 17-18 l. κεκομμένου και πεφυραμένου 19 l. άνακινών 20 l. άφήθησε
26 l. άσάρου

'Another thickening: after cleaning oil of unripe olives mixed with water, boil with 2 *metria* 6 *asara* of Mecca balsam wood, then, after removing the Mecca balsam wood, add ... *metria* of chopped sweet flag and a lump of myrrh in aged, aromatic wine, then, after removing the oil, strain it. Steep in the same way.

'Thickening of rose oil: clean oil of unripe olives and boil with 2 *metria* 4 *asara* of camel grass chopped in half and mixed with water. Boil while swirling by hand and after straining, use. It is suitable for many purposes.

'Thickening of lily oil: after cleaning oil of unripe olives ... first with water, boil with a *metria* 6 *asara* of sweet flag ... to half ... 4 *asara* ...'

1-12 Iris oil. Dsc. 1.56.3 (15.6-14 W), in a chapter headed *ἰρίων ἐπιθήκη* (15.25 W), gives the following (overlaps underlined): *οἱ δὲ ἑλαίου λίγρας ἐνόησ' ὀνύγας πόντες, εὐλοβαλέων λίγρας πόντες ὀνύγας δύο κόφας, ὡς εἶρηται, εὐνόησ' εἰς τὸ ἐλάϊον τὸ εὐλοβαλέων προσέβηκε κατὰ μέρος κεκοσμημένον λίγρας ἐνόησ' ὀνύγας δύο, εὐνόησ' χόδρον οὖνον πολλὰ ἄμβροτον εὐνόησ', εἰτα λαβὼν ἄν' ὑπὸ λεπταίντων ἑλαίου καὶ φρούρων τριμενίου λίγρας δύο τεταραμασ ἄντιφύρον ἵσως κεκοσμημένον ἴσον τῷ σταθμῷ κτλ.* The papyrus has nothing corresponding to *κόφας, ὡς εἶρηται* at the start, and it specifies that the olive oil to be employed is washed oil of unripe olives, as in the other two sets of instructions (13-14, 23-4). But *ἑλεῖλον ἀπὸ ἄμφοτερον (1. ἀντιφύρον) [13 f.] λαίου* (11-12) does not correspond to anything in Dioscorides' instructions here, but cf. for the expression Dsc. 1.53 (1.49.19-20 W) *ἑλεῖλον ἀπὸ ἄμφοτερον ἐλάϊου φυγῶν*. The steeping is not described (12 n.). Otherwise the correspondence is close. On the units employed, cf. 4-5 n.

For other recipes for iris oil, cf. Aët. 1.130 (CMG VIII.1 64.21-65.3), Paul. Aeg. 7.20.29 (CMG IX.2 388.5-10).

1 ἄλλη ἐπιθήκη. The corresponding set of instructions in Dioscorides is also presented as an alternative to another set (1-12 n.).

3-5 π[ε]ρίθερασκόντων. 1 σφραγμαμένον. Contrast σφραγμασ[ε]ν written correctly at 18. WBH would prefer to delete the participle (cf. 24-5), suggesting that it is due to an untimely and imperfect reminiscence of a phrase that will have been common in such recipes, as at 18-19.

3 ο.] At the end, high and low traces on the edge in an abraded context. WBH suggests ἀμλοῦ.

4-5 [μυρ]ήριος β ἀέρας 5. These units are unfamiliar. They are used again at 8, 16, 26, and 28. Eriphanus, *De mensuris et ponderibus*, states (according to Greek and Syriac versions) that there are 6,000 *λεπτά* in a talent, the *λεπτά* being called *ἀέρας* (lines 773-4 in E. D. Moustoukas, *Θεολογία* 44 (1971) 196). J. E. Dean (ed.), *Eriphanus' Treatise on Weights and Measures. The Syriac Version* (1935) § 43; cf. also P. de Lagarde, *Synonymica* 1 (1877) 224.40-47; M.-J. van Erboeck (ed.), *Les Versions grecques et syriaques de Eriphane de Cyprus. Traité des poids et des mesures* (1984) § 45; M. E. Stone, R. R. Irvine (eds.), *The Armenian Texts of Eriphanus of Salamis De mensuris et ponderibus* (2000) VIII.1. But we have *ἀέρας* here, not *ἀέρας*, *asara* appears to be found before a numeral in P. Ness. III 92 (c. 68) at 14, 25, and 27, but the reading is uncertain, and in any case the word 'clearly refers to men and perhaps denotes a trade or profession' (14 n.). The *μῦσιον* is a unit of dry measure, while the *μῦσιον* here is a unit of weight. WBH tentatively suggests that *ἀέρας* and *μῦσιον* are private weight units devised by a particular practitioner for his own use, the names being those of medicinal plants, *ἀεραρον* and *μῦσιον*.

It is worth while to compare the quantities given in the papyrus with those given by Dioscorides in the corresponding sets of instructions:

a. 4-5 2 μρ. 6 ἀε. παρ.; 5 lb 2 oz Dsc.

b. 8: [7] μρ. 0 ἀε. παρ.; 5 lb 10 oz Dsc.

c. 16-17: 2 μρ. 4 ἀε. παρ.; 5 lb 8 oz Dsc.

d. 26: c.7 μρ. 6 ἀε. παρ.; 5 lb 10 oz Dsc.

e. 28: 0 μρ. 4 ἀε. παρ.; 0 lb 5 oz (m: 5 dr) Dsc.

Since Dioscorides has a larger quantity in c than in a, while the papyrus has a larger quantity in a than in c, it is not possible to establish exact values on the basis of this evidence. But to judge from a and c, the *μῦσιον* may have been equivalent to approximately 2-2.5 lb. The figure to be supplied in line 8 (b) may then be 4 or 5 (b or c), and a quantity in the region of 5 oz could be obtained in b by supposing that there are 12 or more *ἀερα* to

a *μῦσιον*. The quantity given by the papyrus in line 26 (d) may be too low: perhaps *μῦσιον* should be emended to *μῦσιον β* (WBH).

5-6 [ε]λλείον so Dioscorides. ἀμ[φ]ή[λων] is also possible.

8 μῦσιον 1. Cf. 4-5 n.

9 ἄν restored to account for the following dative: cf. *ἀμφοτέρω* in Dioscorides.

10 [ε]ρα restored from Dioscorides.

11, 20 ἀπὸ ἄμφοτερον, ἀπὸ ἄμφοτερον. For false aspiration in composition, see Gignac, *Grammar* i 136-8.

12 ὡσαύτως: cf. so in the previous set of instructions, where details were perhaps provided. Dioscorides postpones the description of the steeping to 1.56.2 (1-12 n.), and has a reference forward at the end of the first set of instructions at 1.56.1 (152-3 W).

13-23 Rose oil. Dioscorides' Instructions (1.43 (1.42.7-43.18 W)) begin similarly: *ῥοδόθεν κεκοσμία: χροῖον λίγρας πόντες ὀνύγας δύο, ἑλαίου λίγρας εἰκοσι ὀνύγας πόντες κόφας καὶ φρούρα ἐν ἕκαστῃ ἕκασταίνων, εἰτα ἀπὸ ἄμφοτερον εἰς τὸ ἐλάϊον καὶ ὀνύγας πόντες τοῖς ἑλαίου βάλου ἄμβροτον ἀρωματῶ χυλοῦν τὸ πένταλο κτλ.* The instructions in the papyrus break off at the end of the thickening stage, just before rose petals are added. Other recipes for rose oil are given in Aët. 1.113 (CMG VIII.1 58.1-59.9) and Paul. Aeg. 7.20.4 (CMG IX.2 382.9-15).

14 ἐπιφύρον: the use of καὶ before ἕκαστ(ι) suggests that the imperative should be restored, rather than the aorist participle as at 2 and 24.

16-17 μῦσιον β ἀέρας [ε] δ, 1. μῦσιον β ἀέρας δ. Cf. 4-5 n. *μῦσιον* may be due to the influence of 8 *μῦσιον*, the last use of the word. ἀέρας [ε] is restored to account for the dative plural endings in 17-18 κεκο[σμη]σ[ε]ν καὶ σφραγμαμέν[ε]ον. 1. κεκοσμημένον καὶ σφραγμαμένον. Again, it may be due to the influence of the last use of the word [ε]. The switch from accusative to dative would not have troubled the writer: cf. 26 *μῦσιον ἀέρας (1. ἀέρας)* 5.

19 ἕκαστ(ι) repeats the instruction given at 15. This awkwardness is avoided by Dioscorides in his instructions.

20 τῆ χροῖα. The specification is not present in the corresponding place in Dioscorides, but cf. Dsc. 1.43.1, 1.43.2, 1.52.2 (1.42.11, 42.20-23, 48.12 W).

22ff. Lily oil. Cf. the opening of Dsc. 1.52 (1.47.15-17 W): *ουνοῦν κεκοσμία ... ἑλαίου λίγρας ἐνόησ' ὀνύγας πόντες, κατὰ μέρος λίγρας πόντες ὀνύγας δύο, εὐνόησ' ὀνύγας (v.l. ὀνύγας) πόντες θυρακία οὖνον εὐνόησ' ἕκαστ(ι).* There are other recipes in Aët. 1.116 (CMG VIII.1 60.1-18) and Paul. Aeg. 7.10.7-8 (CMG IX.2 383.1-21).

23-4 Perhaps [τ-φ] | μῦσιον. 'Int': cf. 1.5] v.v. ἠρόδωρον B. III.1.

24-5 ἐπιφύρον [ε] [ε] [ε]. Cf. 3-5. If the supplement is correct, line 24 will have been rather shorter than expected, but a filler may have been used.

26 μῦσιον ἀέρας (1. ἀέρας) 5. Cf. 4-5 n.

26-8 εἰς τὸ | ἤλαϊον μέρ[ε]ος (26-7) corresponds in its position to εἰς τὸ ἤλαϊον κεκο[σμη]σ[ε]ν (17-18). Then the quantity ἀέρας [ε] δ [18] will have been preceded by the name of the ingredient in question. Dioscorides has in this place *εὐνόησ' ὀνύγας (v.l. ὀνύγας) πόντες*. The quantity given in the papyrus is also comparatively small: no *metria*, and only four *asara*. Perhaps 1 [ε] [μ] [ε] [μ] is to be supplied after *μῦσιον*. It seems compatible with the traces, a high crossbar followed at an interval by another trace at letter-top level. In that case, the participle κεκοσμησ[ε]ν will need to be understood with εἰς τὸ | ἤλαϊον μέρ[ε]ος. For such ellipses, cf. *Μαγειν. Οὐκισματῶν* II.3.9 (WBH).

28 ἀέρας β. Cf. 4-5 n. Perhaps ἀέρας [ε], since the unit always appears (or seems to have appeared): cf. 16-17 n.) in the dative plural, whatever the requirements of the context' (WBH).

5243. RECIPES FOR COLLYRIA

26 3B.51/H(4-5)a

24 × 18.3 cm

Second/third century
Plate 1X

On the back of an account of payments in grain, the upper parts of three columns, with the text running in the same direction as that on the front. The upper margin is preserved to a depth of 1.9 cm. The intercolumnia are about 0.8–1.7 cm wide, and the left-hand side of the right-hand margin is preserved at the level of iii 18. A column can be up to about 9.8 cm wide and each line holds about 25 letters.

The text is written in a semi-cursive hand comparable to that of LI 3614 of 200. Each recipe begins on a new line with paragraphus above and with its first line projecting into the left-hand margin. Cf. for the system P. Ryl. III 531 (MP³ 2418), SB XXCVIII 17354 (PSI X 1180, MP³ 2421), and LXXIV 4975 (MP³ 2410.111), all written in similarly wide columns. Symbols are used for measures, and πρῶς is represented by the monogram ϩ; cf. iii 22 (αχ for αχικιστῶν). Final -γς is sometimes represented by a raised ϩ (ii 6, etc.), and there are many examples of abbreviation with suspension, e.g. κολλῦρι consistently for -ov (ii 1, etc.). See in general I. Andorlini, 'Il "gergo" grafico ed espressivo della ricettazione medica antica', in A. Marcone (ed.), *Medicina e società nel mondo antico* (2006) 142–67.

The scribe has corrected a phonetic spelling at ii 9 (παλεον for παλαιόν) by deleting ε with an oblique cancel stroke and inserting α above the line. There are numerous itacistic spellings, and other uncorrected errors of various kinds at ii 11, 13, 17, and perhaps iii 15 and 17 (see comm.).

The text consists of a series of medical recipes all designated or identifiable as collyria, eye salves. The ingredients would be blended, dried, and stored as desiccated sticks. When required, a piece of a stick would be broken off, ground up together with a liquid such as water or milk, and applied. Galen has a similar collection of recipes, taken from Asclepiades Pharmacia, in *Comp. Med. Loc.* 4.7 (xii 730.7–730.9 K). The recipe represented here, if it was not concerned only with eye medicine, may have been arranged, like *Comp. Med. Loc.*, according to the part of the body to be treated. The titles generally begin with κολλῦριον(ς) (ii 1, 4, 9, 15, 19, iii 1, 8, 18). In a few cases, an adjective is used, with κολλῦριον present or understood (ὄξυδερκεῖς: iii 1, 5 (ἀλι)λο ὄξυδερκεῖς(c), 13; στατικόν: 18; μελιονον: 21). There is one proper name (iii 21 Θερμουθάριον), and in one case a distinctive ingredient is highlighted (iii 1–2 τὸ διὰ τοῦ πη[γ]ῆ[ν]ου). Abbreviation is in evidence at ii 19, where it is simply noted that the collyrium in question ἔχεν πολλήν [π]ρογραφήν. In many cases, the specific conditions against which the collyrium is effective are added, introduced by πρ(ῶς) (ii 1, 4–5, 9–10, 15, 20, iii 8–9, 13–14; cf. i 10–11, 14–15). The recipes proper are in list form, with no directions included, except at i 1 and ii 27. Quantities are given in drachmas and obols, except that for pepper, a number of peppercorns is specified in two places (iii 4, 17).

Several variants are noted. At ii 7 and 18, an alternative quantity is introduced by οἱ δέ, as at P. Mich. XVII 758 D 14 (MP³ 2407.01). An alternative ingredient found in another source is twice placed at the end of a recipe, introduced by οἱ δὲ καὶ (iii 11) or ἄλλοι καὶ (iii

17). Cf. ἄλλοι δέ in P. Strasb. gr. inv. 90 P D 13 (i 1 n. below); SB 17134 fr. L-3, perhaps οἱ δέ(?) καὶ μαλά[β]αθρον οἱ μαλάγυμ.; GMP I 11 fr. A.12 n.; BKT X 24.12 n. The recipes in Galen use phrases such as οἱ δέ, ἔνιοι δέ, and τινές δέ καὶ in a similar way: cf. e.g. C. Fabricius, *Galenus Excerpta aus älteren Pharmakologen* (1972) 112–14, on the use of οἱ δέ and ἔνιοι δέ in Galen's sources. In two small sheets containing single recipes, it is not stated that an alternative quantity is taken from a different source: in SB XIV 12086.3–4 (MP³ 2379.2), a dash separates the alternatives (cf. L. C. Youtis, *ZPE* 23 (1976) 124–3), and in LXXIV 4976 (MP³ 2410.112), they are added between the lines (cf. 18, 2a n.). Cf. P. Ryl. 531.17 ἀμύρδαλα π[ικρὰ] ῥ ῥ δέ (I. Andorlini, *AATC* 46 (1981) 39). The variant quantities at ii 7 and 18 in the present text may both be due to scribal error in part of the tradition: in the former case, the ἡμωβέλιον sign may have dropped out, and in the latter, the triangular letters α and δ may have been confused. Galen notes the danger of corruption to which indications of quantity are exposed when they are not written out in full: cf. *Ant. 1.5* (xiv 31.9–16 K.); S. Vogt, in T. Fögen (ed.), *Antike Fachtexte / Ancient Technical Texts* (2005) 68–70.

Col. i

```

ϩ] χρήεις θ[ε] [
]
] c (δρ.) κ̄, . . . [
χ]αλοῦ κεκα[μ] [
(δρ.) ] γ̄, ἀλόγς (δρ.) [
] ειο(υ) (δρ.) ᾱ, . . . [
κ̄]ᾱ]ρ̄ου (δρ.) ᾱ, . . . [
] (τριώβαλον), κόμμε(ς)
] ὕδωρ.
π]ῆ λεπτά βε[ε]-
ψ]ιμθε[ε]σ(υ) (δρ.) δ̄,
] Κιλαικ[ε]σ(υ) (δρ.) ρ̄,
] ὕδωρ.
] νεῖς ὀφθαλ-
] . . . ] . . . ] . . . ]

```

5 δ = δραχμή, δραχμαί 6] ε̄ 8 Γ = τριώβαλον κομμή 11 ψιμθε[ε]1, I. ψιμθου
12 I. Κιλαικού 13 ὕδωρ

Col. ii

κολλήριον(ν) πρ(ός) [. . .] λου(δρ.) ἤ, [. . .] ὀπίο[υ] (τετράβολον), κ[. . .] (δρ.) β, κόμμε[ω]ς (δρ.) ἢ ὕδωρ.
 5 κ[ολλή]ριον(ν) πρ(ός) ἀμ[έ]λαυ[πί]αν καὶ πτε-
 ρύγια· λίθου αἰ[ματι]του(δρ.) ἤ, ἀμμο-
 νιακ(οῦ) θυμαμάτ(ος) (δρ.) ἢ, ζιμίρν(ης) (δρ.) β, σαγα-
 πήρου(δρ.) β, οἰ δέ (δρ.) β (ἡμίμβελιον), εὐφορβείου (διάβολον),
 κόμμεω(ς) (δρ.) ἤ, ὕδωρ.
 10 κολλήριον(ν) πρ(ός) βέτιμα παλλή[ει] ἄ ὄν και πρό-
 φατορ· σκουράς μολεΐβου πεπλυ-
 μένου(δρ.) ἤ, ἀμίλου(δρ.) ἤ, ψμιθ[εί]ου(ω) (δρ.) ἤ,
 στεΐμεω(ς) (δρ.) ἄ (τριάβολον), λεπ[ί]δος χαλκοῦ(θ) (δρ.) ἄ, ὀπίου
 (δρ.) ἄ, νάρου Κελ(τ)ικ(ης) (δρ.) ἄ, κόμμεω(ς) (δρ.) γ, βό-
 ρ[ω]ν(ν) ἔρηων(δρ.) β, ὕδωρ ἀμβρεϊον.
 15 κολλήριον(ν) πρ(ός) πάντα· [. . .] δ (δρ.) δ, χαλκοῦ(ν) κε-
 καυμ(ένου) (δρ.) ἢ, ζιμίρν(ης) τρακ(ῆς) (τριάβολον), κ[ρ]ῆ[σ]κου (τριάβολον),
 ὀπίου πεφωμένον(ω) (δρ.) ἄ, ἀκακία(ς) (δρ.) ἄ,
 οἰ δέ (δρ.) δ, κόμμε[ω]ς (δρ.) ἢ, ὕδωρ ἰδμ[ύ]βρεϊον.
 20 κ[ολλή]ριον(ν) ὁ ἔρχεν πολλήν [π]ορροφάβην
 . . . [. . .] ἀφθαλιῶν νόσον ἀμίλου
 (δρ.) ἢ, [. . .] (δρ.) ἢ, στεΐμεω Κοπτι-
 κοῦ(δρ.) ἢ, . . . [. . .] (δρ.) δ, κ[α]θ[ε]μ[ε]ίας π[ε]π[η]λ[ο]ῦ(ἑτης)
 (δρ.) ἢ, [. . .] [. . .] ἄ, νάρου(δρ.) ἄ, [. . .]
 [. . .] [. . .] ἄ, ὀπίου(δρ.) ἄ, ζιμίρν(ης) (δρ.) ἢ,
 25 λ[ε]π[ί]δος(ς) χαλκοῦ(ν) (τετράβολον), [. . .] [. . .]
 [. . .], ἀλικακ[ε]βου(ν) (δρ.) ἄ, [. . .]
 [. . .] β, τ[ε] ἔρηβ, α[. . .]
 [. . .], α[. . .]
 [. . .] [. . .] [. . .]

δ = δραχμή, δραχμαί 1 κολλήριον¹ 1, 4, 9, 15 ἴ 2, 25 F = τετράβολον 4 κ[ολλή]ριον
 6 νιάθμαμα 6, 16 ζιμίρν¹ 7 δ = ἡμίμβελιον 1 εὐφορβίου = διάβολον 9 κολλήριον
 10-11 I. σκουράς μολεΐβου πεπλημένης 11 ψμιθ[εί]ου, I. ψμιθίου 12 στεμ[ε]ῖ, I. στεΐμεω χαλκ[ε]
 12, 16 Γ = τριάβολον 13 κalic¹ κομμ[ε] 14, 18 ὕδωρ 1. ὀμβρον 15 κολλήριον
 χαλκ[ε] 16 στεμ[ε] 17 πεφωμ[ε] 19 α[ολλή]ριον 21 I. στεΐμεω 22 π[ε]π[η]λ[ο]
 25 λ[ε]π[ί]δος χαλκ[ε] 26 αλικακ[ε]β¹

Col. iii

κολλήριον(ν) ὀξυτερκέες τὸ διὰ τοῦ πηγ[υ]λά-
 νου· πηγάνου ἄγριου σπέρματ(ος) (δρ.) [. . .]
 (δρ.) β, κρόκου μάγματ(ος) (δρ.) δ, πεπ[ε]ρέω(ς)
 κ[ό]κοι(ν), κόμμεω(ς) (δρ.) ἢ, ὕδωρ.
 5 Ἐλλ[ο] ὀξυτερκέ[ς] ἀλάθ[η]ς (δρ.) δ, πεπ[ε]ρέω(ς) [(δρ.) ἢ,
 ἄλλο ἀμμοινακ[ο]ῦ] (δρ.) β, ζιμίρ[η]ς [(δρ.) ἢ,
 κόμμεω(ς) (δρ.) δ, ὕδωρ.
 10 κολλήριον(ν) πρ(ός) ἀρχορέας δ[ι]φθαλίμ[α]ς κ[α]ὶ
 λεπτόν βέτιμα και ἔλ[ε]ν[ε]ν καὶ μ[ε]μ[ε]ίας [(δρ.) ἢ,
 ψμιθ[εί]ου(ν) (δρ.) δ, ὀπίου [. . .] [. . .]
 κόμμεω(ς) (δρ.) ἄ, ὕδωρ δ[ι]μ[ύ]βρεϊον, οἰ δ[ὲ] και [. . .]
 κρόκου μάγματ(ος) (δρ.) [. . .] [. . .]
 15 ὀξυ[τε]ρέες πρ(ός) ἀ[π]ο[νο]μα[ζ]ουσι[ν] ὀπ[ο]-
 χύματα ὀλάες ἀμμυνοπ[ι]α[ς]· σπο-
 δῶ (δρ.) ὀδ, πηγάνου ἄγριου σπέρματ(ος) (τριάβολον), [. . .]
 κρόκου (τριάβολον) και μάγματ(ος) (δρ.) δ, πεπ[ε]ρέω(ς) [. . .]
 κόκοι(ν), ἄλλο και ἡμέρου σπέρματ(ος) (δρ.) β, [. . .]
 20 κολλήριον(ν) τρακ[ι]κόν· καμ[ε]ίας (δρ.) δ, ἑρί-
 κης καρποῦ (δρ.) ἄ, ὀπίου(δρ.) ἄ, ἀκακία(ς) (δρ.) ἢ,
 ζιμίρν(ης) (τριάβολον), κόμμεω(ς) (δρ.) β, ὕδωρ ἀμβρεϊ[ου].
 μύλωνο Φερουθάρου· καμ[ε]ίας(ς) (δρ.) ἢ,
 λίθου σχι(στοῦ) (δρ.) ἄ, ὀπίου ὀπτοῦ (διάβολον), κρό[κου]
 (δρ.) ἢ, . . . [. . .] [. . .], κόμμεω(ς) (δρ.) ἢ (τριάβολον), ἤ[δ]ωρ.

δ = δραχμή, δραχμαί 1 κολλήριον 2 πηγαί¹ σπέρματ¹ 3 μαγματ¹ 4, 7, 11, 20 ὕδωρ
 7 κομμ[ε] 8 κολλήριον¹ 8, 13 ἴ 10 ψμιθ[εί]ου¹ I. ψμιθίου 15 στεμ[ε]ῖ 15 στεμ[ε]ῖ
 15, 16, 20, 23 Γ = τριάβολον 16 μαγματ¹ πεπερ¹ 17 στεμ[ε]ῖ 18 κολλήριον 18-19 I. ἑρέιως
 20 ζιμίρν¹ κομμ[ε] I. ὀμβρον 22 εχ = διάβολον 23 κομμ[ε]

'... use with ...
 '... 20 dr., ... burnt copper ... , 3 dr., ole, ole ... dr., ... castoreum (?) 1 dr., ... spikenard 1 dr., ... 3 ob.,
 gum arabic ... , water
 '... light excretions ... white lead 4 dr., ... Cilician ... 6 (?) dr., ... water.
 '... weak (?) eyes ...
 'Collyrium against ... starch (?) 6 dr., ... poppy juice 4 ob., saffron (?) 2 dr., gum arabic ... dr., water.
 'Collyrium against dim-sightedness and stercyria; haematis 6 dr., ammoniac incense 8 dr., myrrh 4 dr.,
 saffron 2 dr., others (have) 2 dr. ½ ob., spurge juice 2 ob., gum arabic 6 dr., water.
 'Collyrium against old and new rheum: washed lead dross 6 dr., starch 6 dr., white lead 6 dr., antimony
 oxide 1 dr. 3 ob., copper flakes 1 dr., poppy juice 1 dr., Celtic spikenard 1 dr., gum arabic 3 dr., dried roses 2 dr.,
 rainwater.
 'Collyrium against all ... 4 dr., burnt copper ... dr. (?), oil of myrrh 3 ob., saffron 3 ob., roasted poppy

juice 1 dr., acacia 1 dr., others (have) 4 dr., gum arabic ... dr., rainwater.

⁶Collyrium which had a long title, ... disease of the eyes: starch ... dr., ... dr., Coptic kohl ... dr., ... 4 dr., washed calamine ... dr. (?), ... 1 dr., spikenard 1 dr., ... 1 dr., poppy juice 1 dr., myrrh ... dr. (?), copper flakes 4 ob., ... *halikhakabon* 1 dr., ... 2 ... the dry ingredients ...

⁷Sharp-sighted collyrium, the one with rue: seed of wild rue ... dr., ... 3 dr., sediment of saffron oil 4 dr., 50 peppercorns, gum arabic 20 dr., water.

⁸Another sharp-sighted (collyrium): aloe 4 dr., pepper ... dr. (?), salt of Ammon 2 dr., myrrh ..., gum arabic 4 dr., water.

⁹Collyrium against incipient ophthalmias and light rheum and sores: calamine ... dr. (?), white lead 4 dr., poppy juice ..., gum arabic 1 dr., rainwater; others also sediment of saffron oil ... dr.

¹⁰Sharp-sighted (collyrium) against what they call catarracs, scars, dim-sightedness: zinc ash 74 dr., seed of wild rue 3 ob., saffron 3 ob. and sediment of saffron oil 4 dr., 50 peppercorns; others also seed of cultivated (rue) 2 dr. ...

¹¹Stopping collyrium: calamine 4 dr., erica seed-pod 1 dr., poppy juice 1 dr., acacia ..., myrrh 3 ob., gum arabic 2 dr., rainwater.

¹²Quince-yellow (collyrium) Thermostachos: calamine ... dr. (?), fissile stone 1 dr., roasted poppy juice 2 ob., saffron ... dr. (?), ..., gum arabic ... dr. 3 ob., water.

Col. i

1 | ἢ χροῖες διή. ἢ χροῖες δι' φού is by far the commonest such expression. Alternatively e.g. δῆλ (108) γάλακτος οὐ δι' ἴδατος may be considered, but hardly δι' ἴδατος (Gal. *Comp. Med. Gen.* 5.11 (xiii) 827.17 K), not a collyrium). Cf. P. Strab. *ge. ion.* 50 (MP 1379) P D 19–14 (Kallibethē, *Pap. antigon. fr.* 5), where the editor suggests ἢ χροῖες δι' φού, ἀλλοι δὲ δι' αἴματι χροῖσται δι' ἴδατος. WBH supplies e.g. ἴδατος οὐ ἴδατος δι' ἴδατος before as regularly at the ends of recipes in this papyrus, comparing e.g. Gal. *Comp. Med. Loc. 4.7* (ii) 746.13 K) ἴδατος ἴδατος, ἢ χροῖες δι' φού, LXXIV 4977 1–2 ἴδατος, χρ(α)ί μιν ἴδατος, and for a fuller version e.g. Gal. *Comp. Med. Loc. 4.7* (xii) 745.14 K) ἴδατος ἴδατος ἀνάδιδαναι καὶ χρ(α)ί φού.

2 | : a trace on the edge. 'perhaps the end of an additional ingredient found in another version of the recipe, as at iii 11–12, 17' (WBH).

3–9 The blank space at the end of line 2 indicates the beginning of a new recipe. The recognizable ingredients and the length of the recipe would fit the *μαλαβάθρονον*. Cf. e.g. GMP II 8 with commentary. I propose e.g.

μαλαβάθρονον καμμεῖα(ς) (βρ.) π. ψυμ-
θεῖα(ν) (βρ.) , κτιλαεῖα(ς) (βρ.) , κτιλαεῖα(ς) κεκαψ-
μένω(βρ.) , κρόκος (βρ.) 2, ἀλόης (βρ.) 1,
ζωίνου(ρε) , καστερίω(ν) (βρ.) α, ἀγι-
κίας (βρ.) , δόσιον (βρ.) , κλῆβου (βρ.) α, ἀγι-
κίου (βρ.) , μαλαβάθρου(ν) (βρ.) (τραυβόλου), κόμμη(ν)
(βρ.) , ἀλλοι δὲ (βρ.) , ἴδατος. (WBH).

3 | : damaged traces, the first a high crossbar.

4 | κλακοῦ κεκαψμένου. The participle may but need not have been abbreviated. If it was written in full, it will have been divided before -μένου. Ruant copper is common in collyria: cf. e.g. GMP I 14.1 n., II 5 f. 7 n. 5 ἀλόης. Also see L. This ingredient is also found at III 5. Cf. GMP I II f. A.13 n.

6 | : the right-hand edge of a small circle high in the line. 'Is likely, so καστερίω(ν) rather than ψυμθεῖα(ν): the list of mineral ingredients will in any case have finished before ἀλόης in the previous line. On castoreum, cf. GMP II 8 introd. (p. 132). S. Barabas, 'Castoreum et basilic, deux substances animales de la pharmacopée ancienne', in I. Boehm, P. Luccioni (eds.), *Le Médicinal initié par l'animal* (2008) 121–48 (WBH).
7 | : 'αξ' seems probable. The traces include much of the loop and tail of a and the upper branch of κ' (WBH).

7 κλῆβου. Spikenard (*Nardostachys jatamansi* DC), Dsc. 1.7.4 (12.17–21 W) notes that it is used in eye remedies. κρόκος is also included at II 13 (Celtic spikenard; see n.) and 23. Cf. also 5253 1 n.

8 | : the first λ (cf. 3–9 n.) or x.

9 κρόκος(ν). Gum arabic was used in collyria as an agglutinant, but was also held to have therapeutic benefits. Cf. Cel. 6.6.3 (CML I 164.4–6), Dsc. 1.20.3 (i 93.23–4 W); GMP I 14.8 n., II 4 ii 6 n. It is normally the last ingredient mentioned before the recipes in this compilation, as often in collyrium recipes: cf. e.g. LXXIV 4977 1; Paul. Aeg. 7.16.2 (CMG IX.2 335.2–3); L. C. Youtie, in J. Bingen et al. (eds.), *Le Miroir grec: Hommages à Claire Préaux* (1975) 56f. Here, as at II 13–14, there appears to have been one more ingredient. 'Or perhaps the space at the start of line 5 was taken up by the quantity and an alternative quantity: cf. 3–9 n.' (WBH).

10–11 τῆλ λεπτὰ μέγ[ιστα]. A new recipe evidently begins in line 10. τῆλ will represent τῆλ (WBH, comparing PSI Group. XXI 3 11 9–10 (MP 2419.2) πρὸς τὸ λεπτὰ | μέγιστα, Aët. 7.65 (CMG VIII.2 317.8) τὸν πρὸς τὸ λεπτὰ μέγιστο ἀμμοστόνον καλλυρίων; πρ(α)ί μιν ἄλλα ἔχεται earlier in the line. Cf. also III 8–12 below, a recipe said to be effective against λεπτὰ μέγιστο (9); VIII 1088 8–9, a collyrium πρὸς λεπτὰ μέγιστο | καὶ ἑλαφύματα.

11 φψιμθεῖα(ν). White lead, a common component of collyria: cf. e.g. P. Horak 14.3; 4977 4. GMP II 4 ii 2, 10, II 5 ii 26, vi 6; 5252 1 n. The spelling ψψιμθον, rather than ψψιμθον, is regular in the papyri: cf. I. Andorini, *AATC* 46 (1981) 70–71; 4977 4 n.

12 | . Κλιμαξ(αῖον). The ingredient most commonly described as 'Cilician' in Galen's drug books is Cilician saffron, κρόκος Κιλιένος, e.g. *Comp. Med. Loc. 7.2* (xiii 165–6, 28.13 K), 7.3 (xiii 67.13, 72.1 K), 7.4 (xiii 76.16 K), 10.1 (xiii 310.15 K), *Comp. Med. Gen. 7.7* (xiii 98.6 K); cf. SB XIV 1217.5 κρόκος Κιλιένου, XX 1232.2 κ[ι]λόκος Κιλιένου. Galen also refers to ἰκκονος Κιλιένου, e.g. *Comp. Med. Loc. 5.1* (xii 818.7–8 K), *στράβη Κιλιένου* (Cilician strabax. *Synops. officialium* L.) is mentioned as a particularly good variety at Dsc. 1.66 (i 59.18 W). The first trace is a low dot, perhaps the foot of a diagonal descending from left to right. It does not look suitable, but abbreviated κρ[ε]ί[σ]τ[ο]ν (cf. δεκο[σ]τ[ο]ν) might be considered, though κρόκος is nowhere else abbreviated in what survives. κτιλαεῖα would also fit.

14 A new recipe begins here.

14–15 | γινε ὀφθαλμ. WBH suggests (e.g. πρ(α)ί) ἀεθραεῖα ὀφθαλμ[ο]ς; cf. Aët. 7.112 (CMG VIII.2 381.5–7) κολλῆρον ... βαυνοῖα διωκόμενον τὸ ἀεθραεῖο καὶ ὀφθαλμ[ο]ς ὀφθαλμ[ο]ς, 100 (CMG VIII.2 345.20) πρῆβει δὲ καὶ τοὺς καταρθενησῶς ὀφθαλμ[ο]ς, 117 (CMG VIII.2 393.12–15) τοικῶν τῶν καταρθενησῶτων ὀφθαλμ[ο]ς; SB 1734 ff. B iii 11 (quoted in ii 4 n. below).

Col. II

2 | : γινε ὀφθαλμ[ο]ς would fit the traces and the available space. Search is also present at II (in the same quantity) and 202 cf. 11 n. 'Or possibly ψάλλον (cf. 5252 II n.), often included in collyria, e.g. Aët. 7.100 (CMG VIII.2 350.12) (WBH).

ἀψιμθεῖα: common in collyria. Cf. e.g. GMP II 4 ii 5 n.

2–3 | [. . .]. The space available suggests the supplement κ[ρ]όκος. Saffron is also common in collyria: cf. e.g. GMP II 4 ii 11 n; also 5253 5 n.

3 κόμμη(ν). Cf. i 8 n.

4 πρ(α)ί ἀμύβλουστῶν. Dim-sightedness, or blurred vision, against which collyria are often claimed to be effective: cf. III 14 and e.g. Gal. *Comp. Med. Loc. 4.7* (xii 735.3, 785.7 K), SB 1734 ff. B iii 11–12 πρ(α)ί ἀμύβλουστῶν(ων) καὶ ψυροῦ(ων) ὀφθαλμ[ο]ς | καὶ βαυνοῖα βόλερα (but WBH notes that πρ(α)ί ἀμύβλουστῶν(ων) κτλ. as here is also a possible resolution).

4–5 πρ(α)ί πρυγγίου. Pterygium is a condition involving the gradual growth of a fine membrane over the eye, beginning from its corner: cf. ps.-Gal. *Int.* 16.6 (xiv 772.7–11 K = 82.2–6 Peitzi); *Def. Med.* 366 (xix 439–6 K.); Marganne, *Ophthalmologie* 106–109; 5240 ff. 1. –α (WBH) is restored rather than –α(ν): the plural is regular in titles after πρὸς.

5 λίθου αἰγίου (Γρου). According to Dioscorides, haematite is mined in Egypt (5.126.5 (iii 95.7-8 W)) and is effective against various ocular disorders, including scars (ὄψαλα) and tough areas (τραχύματα) in the eyes when applied with honey and ophthalmia and bloodshot eyes with women's milk (5.126.1 (iii 94.4-7 W)). It is included in the collyria in the second-century P. Strab. gr. inv. 90 fr. P B 4, 7, 14 (Kalfleisch, *Pap. argent. gr.* 4-5). Cf. R. Halleux, *Les Alchimistes grecs* i (1981) 206.

5-6 ἄμμωνιακός (οὐ) ἰσθμιακός (οὐ). Gum ammoniac, literally 'ammoniac incense', the resin of the aromatic plant, *Ferula ammoniac* L. At Dsc. 3.84.3 (ii 101.14-15 W), gum ammoniac is said to cleanse white spots (λευκώματα) on the eyes and reduce rough areas on the eyelids. ἄμμωνιακὸν θυμαίωμα is included in a recipe for a skin disorder at SB 1734 fr. A ii 9, and in a μάλαγμα at P. Köln XI 437.7. For its use in eye salves, cf. e.g. GMP II 53 25 n.

6 ζυῖνον (γρ). Myrrh, the resin of a tree (*Commiphora myrrha* Engl.), on which see Andolini (I t n.) 61-5; GMP I 143 n., II 4 4 n., II 5 10 n. It is said at Dsc. 1.64.5 (ii 59.5-7 W) to be good for wounds on the eye, white spots (λευκώματα), particles obscuring the vision, and trachoma, and is extremely common in collyria. Ζυῖνον is the regular spelling in the papyri; cf. Gignac, *Grammar* i 223-2. It is found in this text also at ii 24 and iii 6 2 and 20; cf. also ii 16 ζυῖνον(γρ) κατακ(γρ).

6-7 σαγάρηνον. Sagarpenum, the resin derived from *Ferula persica* Willd. Dioscorides (5.81.2 (ii 97.18-20 W)) recommends it for dim-sightedness (ἀμβλυωπία), as well as for scars on the eyes, particles obscuring vision, and cataracts. It is mentioned at P. Ryk. Anab. I VIII 3.5.

7 εὐφορβείου. Juice of spurge (*Euphorbia resinifera* Berg.). Cf. ps.-Dsc. *Emp.* 1.40.1 (iii 165.8-10 W) καθαίρει δὲ τὰ ἐπισκοπούμενα τὰς ἔκρας (καὶ) ἄργεμα καὶ φθοῖα καὶ ἀγλῆς ποιεῖ δὲ καὶ ὀφθαλμοὺς ἐπιτὶ τῶν ἀμβλυωπῶντων ἐγγυθόμενα, followed by a list including εὐφορβίου χυλός. 1.40.2 (iii 165.18 W). Pliny, *NH* 25.77-9, states that King Juba discovered the plant on Mt. Atlas and named it after his physician Euphorbus, the brother of Augustus' physician Antonius Musa (cf. *NH* 5.16, where Euphorbus is the discoverer). Juba is said to have written a treatise on it (cf. Gal. *Comp. Med. Loc.* 9.4 (iii 270.30-271.4 K)), in which he stated that its juice improved eyesight (Plin. *NH* 5.16); cf. A. Pietrobelli, in B. Maire (ed.), *Greek and Roman in Latin Medical Texts* (2014) 177-82. Pliny indicates also that its collectors see more clearly (*NH* 15.98). The milky juice is a strong irritant, and both Pliny and Dioscorides (5.82.1 (ii 98.1-8 W)) describe how those who collect it fasten an animal's stomach round the plant and cut into the stem from a safe distance with a javelin. The juice flows freely and collects in the stomach. Dsc. 5.82.3 (ii 98.17-99.2 W) remarks on its ability to clear up cataracts, adding πορὰ μόνον δι' ἄνω τῆς ἡμῶρας, ὅπως μόνον μετάνηται καὶ κολληθῆσιν κατ' ἀνάλογον τῆς δριμύτητος. Such irritating effects may account for the special provision included in this recipe, εὐφορβία is also found in a recipe for an eye plaster in P. Strab. gr. inv. 90 fr. P C 5 (ed. L. Andolini, in A. Garzya (ed.), *Storia e medicina dei testi medici greci* (1996) 20), and in P. Cair. Masp. II 671.41 (MP³ 2406) f. IV 27, perhaps of the end of the sixth century, and P. Scholl 15.6 (vi).

8 κέκυμαι. Cf. I 8 n.

9 πρ(ό) βέβαιον. Cf. I 10-11 n.

10 καταρῆμα μολύβου. For ι > ε before a back vowel, see Gignac, *Grammar* i 259-2. Lead drop, according to Dsc. 5.82 and 5.81.3 (iii 55.13, 54.5 W), is effective against τὸ ἐν τοῖς ὀφθαλμοῖς βέβαιον. Lead may have been mentioned at P. Strab. gr. inv. 90 fr. P D 10 το κακαμῶνον (Kalfleisch, *Pap. argent. gr.* 5).

10-11 πεπλημύμενον. 'We require the feminine, in agreement with καταρῆμα. Cf. Dsc. 5.82 (iii 55.14 W); Aët. 7.32, 34 (CMG VIII.2 282.8, 285.10). The error may be due to a false resolution of πεπλημ(ι) (as at 22) or the like at some stage in the transmission' (WBH).

11 ὀμάλου. Dsc. 2.101.3 (I 176.1 W) notes that starch is effective πρὸς ὀφθαλμῶν βέβαιον. It is present also at 20 and perhaps 21; cf. iii 21-3 n.; GMP II 4 20 n.

ψήμιθιείος(ο). Cf. I 11 n.

12 ενεργασίος(ο). The white oxide of antimony, rather than the metal itself. Plin. *NH* 33.104.4 and Dsc. 5.84.3 (iii 65.11-17 W) describe processes by which the sulphuric ore of antimony known as rtilbite, is roasted to produce the white oxide, the substance used for medicinal purposes, the metal itself being subsequently

rejected: cf. R. J. Forbes, *Studies in Ancient Technology* ix (1964) 160-63. It is a common ingredient in eye salves, regularly found in papyrus recipes, e.g. GMP II 4 ii 18, where see n.; cf. Plin. *NH* 33.104. At Dsc. 5.84.2 (iii 56.5-6 W), it is said to cleanse dirt and sores in the eyes. Coptic $\epsilon\tau\mu\epsilon$ is present below at 21-2, where see n.

λεπθός χαλκοῦ(ῶ). Again at 25, Dsc. 5.78.2 (iii 48.1-3 W) notes that flakes of copper are added to ophthalmic remedies, drying up rheum and reducing roughness on the eyelids. Cf. Halleux (5 n.) 226. [Λ]απίδος is included in a collyrium at SB XXVIII 17339.20 (MP³ 2410.72).

ὀπίου. Cf. 1 n.

13 κρόνον Κελ(ὶ)ν(ῶ)ν(ῶ). Celtic spikenard (*Valeriana celidica* L.) was recognized as having general warming and drying properties, and was commonly added to eye remedies: cf. Dsc. 1.7.4, 1.8.3 (ii 12.19-21, 13.18-23 W). It is also found among the recipes for eye plasters in P. Strab. gr. inv. 90 fr. P C 11 ii n.1-2; in a recipe for a collyrium at GMP I 14.6; and in an unidentified form of medication at P. Coll. Youtie 1.4.4 (MP³ 2407.4). WBH suggests that the spelling error in $\kappa\epsilon\lambda\iota\kappa\epsilon$ may be due to an incorrect expansion of a more drastic abbreviation such as $\kappa\epsilon\lambda$, used in the Strasburg papyrus; cf. 10-11 n.

κόρυμβος(ο). Cf. I 8 n.

13-14 βόβ[η]σ(ω)ν(ῶ) ἑξηρόν. For the use of dried roses in eye preparations, cf. e.g. Gal. *Comp. Med. Loc.* 4.7 (xii 768.17, 772.13-14, 773.4-5 K).

15 [] β (). The first two traces are the left-hand arc of a circle (o or rather than ε, since no crossbar is visible) and the lower right-hand arc of a circle (o rather than ω); [ε]ρ[ο]β[η]σ(ῶ) is probable, as at iii 14-15, $\epsilon\sigma\theta\acute{o}\varsigma$ is an impure zinc oxide; cf. Dsc. 5.75.1 (iii 40.14-18 W); Forbes, *Studies in Ancient Technology* viii (1964) 263-4, 15-16 χαλκοῦ(ῶ) κε[κρυμ]ένου. Cf. I 4 n. For the form of the abbreviation assumed in the predicate, cf. II 22.

16 ζυῖνον(γρ) κατακ(γρ). Cf. Dsc. 1.60 (i 55.12-16 W) κατακτὴ δὲ καλεῖται τῆς προσφόρου εὐμύρης τὸ λιπαρόν, κεκομμένη μεθ' ὕδατος ὀλίγου ἀποστεθλαμένης τε δι' ὄργανου, εὐόδου δὲ λίαν καὶ πολυτελεῖς ἐστὶ καθ' ἑαυτὴν ὅσα μέρη τὸ καλοῦσθαι κατακτὴ. δόξαμος δὲ ἔστω ἡ ἀμυγρὴ ἑλλοῖον δὲ ἄνω καὶ ἐλαχίστην πλείστην δόξιναι κεκομμένη J.-L. Fournier, in A. Boudhous, C. Louis (edd.), *Études coptes X* (2008) 339. Its exsperativens perhaps expresses the small amount used in the recipe.

εὐ[ρ]ῶνον (πρὸς βόλον). Cf. 2-3 n. The final trace is an upright descending below the line, consistent with Γ but not with 5.

17 ὀπρῶν σφουριμαῖος(ο). Cf. iii 23 ὀπρῶν ὀπρῶν; Dsc. 4.64.6 (ii 230.17-18 W) φόντανον δὲ εἰς τὸ ὀφθαλμικὸν ἐστ' ὀστέριον καινὸν, ἕως ἐν μαλακῇ καὶ κρυστέρον φαθῆ. There are examples in eye remedies in Gal. *Comp. Med. Loc.* 4.7 (xii 758.7, 774.14 K), 4.8 (xii 796.3-4 K).

ἀκασία(ο). The juice derived from the fruit, and sometimes leaves, of the acacia tree (*Acacia* Willd. sp.), which is also the source of gum arabic, is recommended for several eye conditions at Dsc. 1.101.2 (i 93.8-11 W). It is mentioned again at iii 19 and possibly at i 6-7 (i 3-9 n.), and is a very common ingredient in papyrus collyria; cf. GMP I 14.7 n., also GMP I 13.4, II 4 3 5, II 8.12. WBH suggests that the final ε dropped out due to the similarity of ε to the upper part of 5.
17-18 (β) α [] δ (β) β. For this pair of variants, no doubt due to the confusion of letters of similar shape, cf. e.g. Gal. *Comp. Med. Loc.* 1.8 (xii 490.1 K) κρυστέρον λίγρας α', of δδ δ', 9.2 (xii 249.1-2 K) νέρου γ' α', of δδ δ'.

18 κ(ε)μ(μ)ῶκος. Cf. I 8 n.

[ε]πι[β]ρεῖον tentatively read and supplied by WBH, who notes that the ε, above the final letter of the following line, is the clearest.

The paragraphus is represented by a small trace above the right-hand side of the initial κ of the next line (WBH).

19 8 ζυῖνον πολλῶν [ε]ργασίω(ο). WBH compares Androm. ap. Gal. *Comp. Med. Gen.* 5.5 (xiii 807.7-8, 13-14 K) χυμῶν Ἰουδαίων πολλῶν ἑσπερίων ζυκτου ... χυμῶν, πολλῶν ἀσπυγίων ζυκτου, Ἀλεξιμανῶν ἢ Νικαίουζων, πρὸς εὐμύρη κτλ. According to Galen's usage, παραγραφῆ should refer to the specific title of the recipe, while the list of conditions for which it is suitable is called the ἑσπυγία; cf. Fabricius, *Galenus Excerptis*

24 9. There is a fairly long προγραφή at iii 1-2. The recipe itself is very long, extending from 20 perhaps to 29, and certainly much longer than any other in this text.

20 . . . [. . .] ; ἡρ(α) σ[ι]δ(α)σ appears suitable.

ἀμάλοσ. Cf. II n.

21 . . . [. . .] ; WBH tentatively suggests ψ[υμωλόσ].

21-2 στέμνωσ Κοπτι[κωσ] or Κοπτι[κωσ] (WBH). This is mentioned in eye remedies in Art. 7.41 (CMG VIII.2 394.8-9), στέμνωσ Κοπτινωσ, and 7.100 (CMG VIII.2 343.24), στέμνωσ Κοπτινωσ (v.l. Κοπτινωσ). There are also references in magical papyri: PGM IV 1070 στῆμα Κοπτινωσ, V 67 στῆμα Κοπτινωσ, VII 236 στῆμα K[ο]πτινωσ. The Egyptian kohl is not antimony or siltium but galena, a dark grey ore of lead; cf. A. Lucas, *Ancient Egyptian Materials and Industries* (4 1962) 80-84, 195-91. A. D. Hardy et al., 'Egyptian Eye Cosmetics ("Kohl"): Past and Present', in D. Bradley, D. Creagh (eds.), *Physical Techniques in the Study of Art, Archaeology and Cultural Heritage* 1 (2006) 173-203. WBH suggests that this is meant here, noting that 'kohl' is the original sense of στῆμα; cf. Hallux (5 n) 183 (108 n. 3).

22 'A short mineral ingredient is needed in the gap: perhaps Κοπτι[κωσ] (δρ.) . . . σποδο[σ]. Cf. 15 n.' (WBH).

κ[α]θαίρωσ[αα]: very common in collyria. Cf. 5249 4 καθάριωσ σ[ε]π[λ]ημῶνωσ; καθάριωσ alone below iii 9,

18, 21; GMP II 4 ii 9 n.
23 . . . [. . .] Possibly κ[α]θ[α]ίρωσ[αα]. The traces given as . . . [. . .] are the right-hand arc of a circle and the lower part of an upright' (WBH).

σῆβου. Cf. 17 n.

24 ὄστρω. Cf. 2 n.

ζωμ[ι]ν[ω]σ. Cf. 6 n.

25 λ[ε]π[θ]ωσ[αα] χαλο[σ]. Cf. 12 n.

26 ἀλάκωκ[ω]σ. The name of a kind of στέρωωσ (hound's berry, *Physalis alkekengi* L.) according to Dsc. 4.71 (ii 229.15-16 W). Dioscorides also notes 4.72 (ii 230.10 W) that it is an alternative name for στέρωωσ ὕπνωτικωσ (sleepy nightshade, *Wibentia somnifera* Dun.) and that Castaneus applied the name to θάρλατωσ (4.74 (ii 231.3 W)), for which cf. I. Andolini, in ed. (ed.), *Testi medici in papiri* (2004) 110-11, in SB 1712A fr. A ii 32L. *Atata, Media 66* (2024) 322-32. The first, like the στέρωωσ *eyranio*, may be used against lachrymal fistulas, and its juice may be mixed with certain collyria in place of water or egg (Dsc. 4.70-71 (ii 229.4-14, 230.5-6 W)). The juice of the στέρωωσ ὕπνωτικωσ may be used against dim-sightedness (Dsc. 4.72.2 (ii 231.9-10 W)).
27 β̄ was no doubt preceded by (δρ.).
τά ἔργα will belong to an instruction concerning the dry ingredients.

Col. III

1 κολλῆρωσ(ν) ὀφθαλμῶσ. Such collyria, also known as ὀφθαλμικῶσ or -δορκικῶσ, were thought to encourage laceration and so to improve eyesight; cf. Cass. *Proth.* 18.2-3 Gazza (p. 44) = 18 Ideler (i 151.15-17) τὰ ἀποκαρμωτικὰ κολλῆρια ὀφθαλμικῶσ λέγεται, τῶν ἐκ τῆσ ἀποδορκικωσ καὶ αὐτῶσ καθάρωσ ὀφθαλμῶσ ἔργα τῶσ χρωμῶσ. For such recipes, cf. e.g. Gal. *Comp. Med. Lec.* 4.7 (iii 765.12-772.4, 773.15-785.6, 778.9-16, 779.4-17, 784.12-16, 785.10-14, 790.1-9 K); also Suppl. *Mag.* II 94 = 1.4-6 (MP² 239), 5245 7-8.
2-3 τὰ διὰ τοῦ σπυρίδρωσ. Cf. GMP II 5 vii 11 (MP² 242) τὰ διὰ σπυρίδρωσ. It was common to mention a distinctive ingredient in the titles of collyria. 'The recipe in GMP II 5, though ἠρ(α)σ ἐλάκωμα (13-12) rather than ὀφθαλμῶσ, has the same ingredients as the recipe here: cf. 2 n. The quantities, however, are missing or damaged there. Cf. also 13-17 n.' (WBH).

2 πρηγῶσ(ν) ἄγριωσ σπέρμασ(α). Wild rue is also specified at GMP II 5 vii 13 πρηγῶσ ἄγριωσ, where see n. Dsc. 1.46.2 (ii 60.4-6 W) notes that the ground seed is useful for dim-sightedness.

At the end of the line, perhaps ἰοῦ, 'verdigris' (GMP II 5 ii 21 n.), to give the recipe a metallic ingredient. 'But if *σ* δ̄ was written at the end, as at ii 18, the list of ingredients may match exactly that of the recipe at GMP II 5 ii 13-17: cf. 1-2 n.' (WBH).

3 κρόνωσ μάγμασ(α). The sediment from saffron oil. Dioscorides notes (2.17 (ii 31.17 W)) that it can cleanse matter that obscures the pupils. It is present also at 12 and 16. There is another instance in a collyrium at GMP II 5 v 18. The recipe at GMP II 5 vii 11-17 has μάγμασ not further qualified (15). See in general on μάγμα GMP II 3 ii 8 n.

3-4 σπυρίδρωσ [ε]λάκωσ ῥ. White pepper is said by Dioscorides to be especially effective in eye remedies (2.159.1 (i 214.18-19 W)). He also notes that pepper cleanses matter that obscures the pupils (2.159.3 (i 215.8-9 W)); cf. 3 n. Cf. GMP II 5 vi 1 n. All three collyria described in the papyrus as ὀφθαλμῶσ (iii 1-4, 5-7), and 13-17) contain pepper, and, as far as can be determined, none of the others do. Three of the ὀφθαλμικῶσ collyria recorded in Gal. *Comp. Med. Lec.* 4.7 contain pepper (iii 784.12-16, 785.10-14, 790.1-9 K). The same quantity is specified at 16-17.

4 κόμωσ. Cf. 18 n.

5 ὀφθαλμῶσ. Cf. 1 n.

ἀλάτρωσ. Cf. 13 n.

σπέρμασ (δρ.) ῥ. Contrast σπρ- at 3 and 16. There is no space for κρόνωσ at 4 or 17, or for λεκωσ, and it is likely that there was simply a quantity in drachmas at the end of the line.

6 ἄλαξ ἀμωμ[ω]κωσ[σ]. Not sal ammoniac (ammonium chloride) but a salt produced by the oasis of Ammon, probably a mixture of gypsum and sodium chloride; cf. Hallux (ii 5 n) 207. For its use in collyria, cf. e.g. Gal. *Comp. Med. Lec.* 4.7 (iii 778.6, 14-15, 779.4 K).

ζωμῶσ. Cf. 12 n.

7 κόμωσ(α). Cf. 18 n.

8 ὀφθαλμῶσ[ε]. The supplement is not in doubt, but the final trace, an upright with further ink to the top at the right, does not suggest ε. It is possible that an abbreviation was used, though the space would accommodate the word written out in full.

9 λευγῆσ ἴστωσ. Cf. 110 n.

ὄστρωσ καθῆλῶσ (δρ.) ῥ. Contrast σπρ- at 3 and 16. There is no space for κρόνωσ at 4 or 17, or for λεκωσ, and it is likely that there was simply a quantity in drachmas at the end of the line.

ὀφθαλμῶσ. Cf. 1 n.

ὀφθαλμῶσ. Cf. 1 n.

1 . . . [. . .] . The first trace would suit the right-hand side of υ. Perhaps e.g. κόμωσ after ὀφθαλμῶσ (δρ.) ῥ., followed by a quantity. Cf. e.g. ps-Gal. *Int.* 15.6 (xiv 765.16-17 K = 768.9-9 Petri): τὰ διὰ κρόνωσ αὐσ σιτετὸσ πρὸσ ἀργωμῶσ ὀφθαλμῶσ. The rubbed final traces suggest τ' (τράβωλοσ) followed by >, but the sense of the last would be unclear' (WBH).

11 κόμωσ(α). Cf. 18 n.

σ[ε]β[ι] supplied by WBH, who notes that the upper part of the letter is lost to abrasion. Cf. ii 7, 18; iii 17 ἄλωσ καὶ

12 κρόνωσ μάγμασ. Cf. 3 n.

13-17 Another ὀφθαλμῶσ (1 n.). 'This recipe has the same ingredients as the one at the top of the column (cf. 2 n.), except that gum arabic and water have dropped out (17 n.), but a few more are added: zinc oxide, saffron, and (in the alternative version) cultivated rue seed' (WBH).

13-14 πρ(α) δ̄ ἐπο[σ]μωμῶσ(α) ὀφθαλμῶσ ὀφθαλμῶσ ὀφθαλμῶσ ἀλάκωμῶσ read and supplied by WBH. For ὀφθαλμῶσ and ὀφθαλμῶσ, cf. 5241 frs. 1.3 and 3.1 n.n., and for ἀμωμῶσ, ii 4 n. above.

14-15 σπυρίδρωσ. Cf. 15 n.

15 (δρ.) δ̄. The quantity is much larger than any other in the papyrus, but cf. the final recipe in Gal. *Ant.* 2.17 (iv 205.9 K), where, according to Kühn's text, (χυμωμῶσ) < ὀσ' is the only quantity greater than four drachmas. WBH prefers to emend to δ̄, as at ii 15.

πρηγῶσ(ν) ἄγριωσ σπέρμασ(α). Cf. 2 n.

16 κρόνωσ . . . καὶ μάγμασ(α). Cf. ii 2-3 n., iii 3 n.

16-17 σπυρίδρωσ(α) ὀφθαλμῶσ ῥ. Cf. 3-4 n.

17 ἄλωσ καὶ introduces an alternative: cf. ii.

ἡμέρου σπέρματος), 'σπργανίου' is understood from 15 σπργανί(ου ἄγρίου) σπέρμα(ος), the only other seed in the recipe. The ellipse is somewhat harsh, but easily accounted for in the copy from which the variant is drawn, καὶ ἡμέρου σπέρματος εἰς λ. will have come immediately after σπργανίου ἄγρίου σπέρματος ἐπιβάλλου, cf. e.g. SB VIII 9860(b), 24-16 (MP³ 2391.6) σπργανίου ἄγρίου (=σπέρματος (Bp.) 8) καὶ ἡμέρου (Bp.) 8. Wild and cultivated fig have similar properties and uses: cf. Dsc. 1.45 (ii 57-1-59.12 W) ('WBH').

[i] a high trace, perhaps an addition to the quantity in obols. There is not room for βίβου, and to judge by line 11, gum arabic and water would be expected at the end of the recipe proper, before βίβου καὶ. They may have dropped out: WBH compares GMP II 5 vi 21-2, where the expected ὄδου χρῆσι is not present.

18 κολομίνα(ς) στυακίου. Cf. Aët. 7.104 (CMG VIII.2 361.1-3) περὶ τῶν στατικών κολομίνων καὶ ἐρωτηρῶν. καὶ τὰ στατικά δὲ καλούμενα κολομίνα ἀποκρουστικὰ τυγχάνει· ἔσται γὰρ τῆν ἀνακτον ὄρμην τοῦ βέλ-
μου. For papyrological examples, cf. P. Ross. Geogr. V 57 (MP³ 2423) v. ii, 4, 11; P. Princ. III 135 (MP³ 2379.2) -1 (I. Andolini, in A. Marcose (ed.), *Medicina e società nel mondo antico* (2006) 165); O. Bodl. II 2681, 2183, 2187 (MP³ 2424, 2426, 2430). There is a probable reference in a private letter at LIX 4001.36 (centuriad); cf. n. 18-20. These six ingredients are all familiar in collyria: for example, they are found, together with burnt correa, in some ἐλάγια. Cf. on 5249 below.

18 καδμεία. Cf. ii 22 n.

18-19 ἐρίφιτε καρπῶ. Seed-pod of heather (*Erica arborea* L.), a common ingredient in collyria: cf. GMP I 13.2-3 and 7 (restored); ἐρίφιτε alone at GMP II 7 j 5 and P. Horak 14.8; I. Andolini, *BASP* 18 (1984) 15.

19 φέσιον. Cf. ii 2 n.

ἀκακία. Cf. ii 17 n.

20 ζυμῶν(ης). Cf. ii 6 n.

κόκκιμο(ς). Cf. i 8 n.

21-3 This recipe resembles that for the μύλωνον collyrium at 1088 1-7. Both include calamine, porphy juice, saffron, fistule stone, and, as regularly, gum arabic and water. The quantity of fistule stone is the same in both, while 1088 calls for three obols of porphy juice and 5243 for two. The other quantities are missing or illegible in 5243. The recipe in 1088 has two further ingredients, ψυμθών (Bp.) 2 and ἀμίλον (Bp.) 8. The latter would fit the spaces and traces in line 23. ἀμίλον is placed second between two mineral ingredients at ii 11 and first at ii 20.

21 μύλωνον. For the use of this adjective in the titles of collyria, cf., besides 1088 1, Gal. *Comp. Med. Loc.* 4.7 (iii 769.11, 786.14, 787.3 K.); J. Voinin, *Les Cachets de couleur dans le monde romain* (1999) 47. All the preserved recipes contain saffron, which will have lent them its colour, and WBH notes that the two papyrological examples both contain another yellow ingredient, λίθος χρυσεῖς; cf. Dsc. 5.127.1 (iii 95.10 W) ἄριστος δὲ εἶναι 80αῖ δὲ παρασκευάζω τῷ χροῦ. Plin. *NH* 36.145 καταπόδιον ἑνεο ἰσχυρῶς. Certain collyria called χρωροί also contain saffron: cf. GMP II 4 ii 15 n. For yellow plasters, many of which owe their colour to iron, cf. P. Mich. 778 E 9-15 n.

Φαρμαθῶνιον is familiar as a female personal name in Egypt, but does not seem to be found elsewhere as the name of a collyrium. Cf. for the hypocoristic form e.g. Μουκόρον, Νικέρον (Alex. *Thal. Therap.* 2 (ii 15.7, 23.4 P)), Aët. 7.117 (CMG VIII.2 394.13)), and in general on such names PSI Congr. XXI 3 ii 9-19 n. (WBH).

καδμεία. Cf. ii 22 n.

22 λίθων χρυσεῖων. Probably limonite: cf. e.g. R. Halleux, J. Schamp (edd.), *Les Lapidaires grecs* (1983) 287 n. 5. Dsc. 5.127.2 (iii 95.13-16 W) notes that it is useful as a medication for several eye conditions. It is found in papyrus collyria at 1088 3 and GMP II 7 v 2, 16, vii 17, 26. χρυσεῖ(ον) is so abbreviated in 1088 5 (plate: Andolini (8 n.) 164 Bp. 24), SB 7724 A ii 33, iii 12, 39, G 7.

ἐπίλου σπασῶ. Cf. ii 17 n., and e.g. SB 9860(a).3 ἐπι(λου σπασῶ (in a collyrium).

κερῶ. Cf. ii 2-3 n.

23 . . . I . . . I . . . I. Possibly ἀμ[ί]λον followed by a quantity: cf. 21-2 n.; ii n.

κόκκιμο(ς). Cf. i 8 n.

D. LEFTH

5244. RECIPE FOR TOOTH POWDER

100/19(d)

6.5 x 12.5 cm

Later third century
Plate XII

Remains of 13 lines, written across the fibres on the back of a Latin military document dated to the reign of Phillip and his son (944-9). The original upper and left-hand edges are preserved in part, giving an upper margin about 1.6 cm deep and a left-hand margin about 0.6-1.2 cm wide. The preserved right-hand edge falls just to the left of the original margin.

The hand is a well-executed upright cursive like that of XLVII 3366 C, of 238. Apostrophe separates two consonants (8). *i* is written once for *ei* (7). Initial *r* receives a diaeresis (6).

The fragment contains a recipe for a preparation to be used in treating ulceration of the gums. Two other published papyri contain recipes for preparations intended for dental care, MPER NS XIII 7 (MP³ 2423.5), a powder for 'white and uncorroded' teeth, and P. Ryl. I 29(a) (MP³ 2379) 24ff., a dentifrice, ὀδοντόσημα, but these are both prophylactic. This recipe is said to have been obtained from Julianus of Caesarea: for the inclusion of such information in recipes, cf. e.g. 5246, 5248, 5249, 5250; P. Mich. XVII 758 (MP³ 2407.01) introd. (pp. xxi-iv). Medical recipes were commonly exchanged among doctors, healers, and laymen alike: cf. e.g. P. Mert. I 12 (MP³ 2407); Gal. *Comp. Med. Loc.* 1.1 (xii 423.13-15 K.); *Ind.* 31-7 (ii.7-13.2 Boudon-Millot-Jouanna); Plat. *Charm.* 156d.

The composition of the recipe (calamine, πομφόλυξ, and probably one or more lost ingredients) distinguishes it from those preserved elsewhere for preparations to be used in cases of dental or gum diseases. Calamine and πομφόλυξ are found, separately or together, in eye salves and plasters, usually those to be used against various types of ulcerations, but they are rarely used in connection with dental problems. πομφόλυξ is, however, said to be effective against corroded gums (Aët. 2.67 (CMG VIII.1 175.9-11)). It appears in a recipe for loose teeth and purulent gums in Archig. ap. Gal. *Comp. Med. Loc.* 5.5 (iii 873.6 K.), which is repeated in Aët. 8.31 (CMG VIII.2 443.26-8) and in ps.-Dsc. *Eup.* 1.74 (v 180.14 W). Calamine, together with rock-alum (χαλασίτης), is found in a recipe for a powder to be used against ulcerations of the gums in Aët. 8.25 (CMG VIII.2 434.18-24); the same ingredients are used in a preparation to be used in cases of loose teeth and discharge from the gums in Paul. Aeg. 3.26.3 (CMG IX.1 199.7-9), and again in a prescription for a growth on the gums (ἐπιουλίς) in Aët. 8.27 (CMG VIII.2 437.7-9). Calamine is also contained in a medicine for amblyopia and aching teeth in Alex. Trall. *Therap.* 2 (ii 45.21-47.3 P). 5244 appears to be an original prescription for ulceration of the gums, using calamine for its astringent, cleansing, desiccating, and cicatrizing qualities (Dsc. 5.74.2 (iii 38.7-14 W)), and πομφόλυξ for its cooling, purging, adhesive, desiccating, and cicatrizing properties (Dsc. 5.75.12 (iii 43.19-21 W)), Paul. Aeg. 7.13.1 (CMG IX.2 323.1-8)).

περὶ δδόντων. [
 ξηρὸν ποιοῦν πρὸς
 ἀνεβριβρωμένα
 καὶ βηματάδῳ μῆ-
 5 λιστα εἰς σύκτα, [
 ὄξχος παρὰ Ἰου-
 λιανοῦ ἀπὸ Καισαρίας· [
 καθμείας κεκα-
 μένης καὶ ἐβτε-
 10 ςμίνης ὄσινου [
 ὄσγκίας ὄη-
 πμφόλογος πε-
 π]λυμένου [] [
 1 π enlarged 3 λ ἀναβριβρωμένα 6 ἰου 7 λ Καισαρίας 8 καθμείας 10 λ ὄσινου
 12 λ πμφόλογος

¹Concerning teeth.

²Powder effective against eroded (gums) and (gums) affected by flux, especially towards night, which I got from Julianus of Caesarea: calamine burnt and extinguished with wine, 6 ounces; washed *πομπήδων*...

³Ξηρόν, sometimes ξηρίον, commonly designates a dry powder: cf. GMP II 7 | 1 n. Preparations used to treat conditions affecting the teeth and gums are often composed of ingredients with drying and warming properties, and they are mostly used dry, often in powder form. See e.g. Gal. *Comp. Med. Loc.* 5.5 (xii 867.11 K.); Aët. 8.23, 26 (CMG VIII.2 433.13, 436.7, 10), Marcell. Emp. 12.10-11 (CMG V 214.30-216.3).

³⁻⁴ἀναβριβρωμένα (l. ἀνα-) καὶ βηματάδῳ ἰε. οὐδία. Cf. III 110d.

³⁻⁴ἀναβριβρωμένα, l. ἀνα-. Cf. Paul. Aeg. 3.26.11 (CMG IX.1 200.22) εὐς τῶν οὐδῶν ἀναβριβρωσέας. *Βαφί-βρωσέας* and *περὶβριβρωσέας* and cognates are commoner of eroded gums. For the superfluous syllabic augment, cf. Gignac. *Grammar* II 225.

⁴βηματάδῳ. Equivalent to the common βηματισμένα.

⁶⁻⁷Ἰουλιανῶ ἀπὸ Καισαρίας (l. Καισαρίας). Unidentified. He could be the Methodist doctor (*BNP* s.v. Iulianus [2]), of unknown origin, who worked in Alexandria around 350; several prescriptions of his are preserved. Recipes may circulate under the names of their inventors long after their death: cf. e.g. the plaster of Archagathus cited in P. Mert. I 12 (MP³ 2407), the oxyment of Julian in Paul. Aeg. 7.5.2 (CMG IX.2 280.21), and E. Samama (ed.), *Pharmakopoeia et pharmaciae* (1906) 59-73), but the rhetor and sophist Julianus of Caesarea in Cappadocia (*PLRE* Iulianus (5)), who lived c. 377-340, is probably ruled out on chronological grounds.

⁸⁻¹⁰καθμείας κεκαμμένης καὶ ἐβτεμένης. Calamine was usually burnt, then quenched with wine, vinegar, or occasionally milk, and finally washed. On calamine, cf. 5243 II 22 n.

¹⁰ὄσινου, l. ὄσιν. On fluctuation between -ου and -ο(ι) in the genitive and dative singular, see Gignac, *Grammar* I 208-10, II 22. Wine was used to extinguish burning calamine and also to triturate preparations

containing calamine or other ingredients: cf. e.g. Dsc. 5.74.6-7 (iii 40.3-10 W.); Plin. *NH* 34.203 4; Gal. *Comp. Med. Loc.* 4.7 (xii 731.6-7 K.); Orib. *Syn.* 3.3.1 (CMG VI.3 61.16) καθμείας κεκαμμένης καὶ ὄσινου κατακεκομμένης.

¹¹ὄσγκίας ὄη. The amount of calamine corresponds to that used in an eye salve against ulcers attributed to Nilammon, which begins with the same two ingredients as our recipe: cf. Paul. Aeg. 7.16.16 (CMG IX.2 338.7-9); another version in Aët. 7.106 (CMG VIII.2 370.4-9).

¹²⁻¹³πμφόλογος (l. πμφόλογος) πη[π]λυμένου. On the use of a for a and the transposition of a and u, see Gignac, *Grammar* I 287-8, 293-4. πμφόλος is a zinc oxide produced by melting together calamine and copper (Dsc. 5.75.2-7 (iii 41.3-42.11 W.), Plin. *NH* 34.128ff.). Mainly because of its astringent, cooling, and adhesive qualities, πμφόλος was used in eye salves and plasters for stopping and moderately drying discharges, as well as for malignant ulcers. Cf. e.g. Dsc. 5.75.12 (iii 43.19-21 W.), Gal. *Comp. Med. Loc.* 4.1 (xii 699.12-700.9 K.), Aët. 7.11 (CMG VIII.2 263.7-264.3), Paul. Aeg. 7.3 πμφόλος; 7.16.31 (CMG IX.2 353.31, 355.6-9).

M. HIRT

5245. RECIPIES

23 B.4/B(1)a 6.5 x 14 cm Second century Plate XII

A fragment broken off at the foot and on the left. The upper and right-hand edges appear to be intact. The upper margin is preserved to a depth of c. 1.8 cm and the right-hand margin to a width of 0.3-0.7 cm. The back is blank.

The text is written along the fibres in an informal upright and semi-cursive hand that somewhat resembles that of P. Phil. I (*GLH* 13a) of c. 125. There are some itacistic spellings (I for ε; 2, 9, 13; ε; for ε; 3, 5, 8, 14).

Each recipe begins on a new line, the interlinear space between recipes being slightly larger than that between lines within a recipe. The neat layout is comparable to that of other texts in the same category, e.g. Suppl. Mag. II 83 and 74 (MP³ 2405, 6012).

The fragment contains six short iatromagical recipes. The first five and possibly also the sixth are concerned with problems affecting the head or the eyes. No quantities are indicated. The magical nature of some of these recipes is suggested by the repeated use of φέρει (2, 11, 13), and ε; χαρίτων γρά- followed by what appears to be a magical formula (9-10).

Some ninety medico-magical papyri have been published: see <http://web.philo.ulg.ac.be/cedopal/medecine-dans-legypte-greco-romaine>. Suppl. Mag. II 74, 94, and 96A.48-72 (MP³ 6012, 2391, 6014) provide parallels for the general form and content of this text.

The neat writing and careful layout of the text may indicate a copy by a scribe, perhaps from a recipe book. But it is impossible to tell whether the text was used by a professional magician or by a doctor, as the boundaries between magic and medicine were often blurred and doctors were not all opposed to the use of 'wonderful' remedies, especially for diseases that were difficult to treat, such as headache, fever, gout, and epilepsy. Cf. e.g. Archip. ap. Gal. *Comp. Med. Loc.* 2.2 (xii 573.5-576.4 K.), headache; Archip. ap. Alex. *Trall. Therap.* 1.15 (i 567.10-575.9 P.), epilepsy; Alex. *Trall. Febr.* 6, 7 (i 407.1-10, 437.5-24 P.), quotidian and

quartan fevers; *Therap.* 8.2 (ii 375.20–377.31 P), colici; II.2 (ii 475.19–24 P), diseases of the kidneys; 12 (ii 579.13–585.24 P), gout; V. Nutton, *Ancient Medicine* (2013) 275–8.

	πρὸς κεφαλᾶλαλιαν ἀρροχ[λ]ά- ου πε[τ]ταλον φόρι.					
	πρὸς τὰς εἴν ὀφθαλμοῦ κρεβάς] αἱ ἀπ[ο]κεφαλίας τῶ 5] τοῦ τραχήλου παρὰ τρι- βε.]					
	πρὸς ἐξὺ[δ]ορκίαν ὀπὸν Κυρνη- ϊκὸν] χρεῖου.					
10	πρὸς ὀφθαλμίας ἱς χαρτίον γρά-] υβριε[] . . . χ. αθρ[] υ] αἱ φόρι.					
	πρὸς κρατ[έ]λην Ἀλεξανδρείας χαμαιδάφ]νης φύλλα εἴρας φ[έ]β[ε]ι. 15] αἱ κυκλαμένου η̄] καὶ τὸ ἥμισυ] αν . . .					
14.1	1-2 I. -γλώσσου	2. II. φέρις	3 I. κρεβάς	5-6 I. παρὰ τριβε	8 I. -χρεῖου	9 I. εἰς

For headache: wear a leaf of plantain.
For eyes in the eyes: decapitate (ants) and rub with the (remainder) of the neck.
For sharp-sightedness: smear Cynratic juice.
For ophthalmia: write on a small piece of papyrus ... wear.
For drunken headache: wear leaves of Alexandrian chamædaphne strung together.
'... .. of cyclamen or ... and the half ...'

1-2 εὐνοχ[λ]ά[σ]ου (I. -γλώσσου) = (τα)λον. There is no trace of a c at the end of line 1. For the spelling with a single c, cf. e.g. *γλωσσόμον* for *γλωσσο-* (LXXVIII 5163 fr. 1 i 20 n.). *Plantago major* L., common plantain, had many medical uses (Disc. 2.126.2–4 (i 199.5–200.5 W); Gal. SMT 6.60 (ii 818.1–839.8 K)), and was the subject of a book by Themison (Plin. *NH* 25.80; cf. V. Nutton in D. Langslow, B. Maire (ed.), *Body Disease and Treatment* (2010) 217–18). For the use of the root as an amulet to ease headache, cf. e.g. CCGAG VII 234.31–2; IX.2 131.19–20; XI.2 122.3–4; ps.-Apul. *Herb.* 1.1 (CML IV 22.2–4). The use of the leaf in this way appears to be a novelty, but the leaves were used in medicine (cf. Disc. and Gal., as above), and plant leaves could be worn for medical purposes: cf. e.g. ps.-Disc. *Emp.* 2.98 (iii 390.7–9 W), stinking bean-leaf (*Manegris foetida* L.); Alex.

Tall. *Fabr.* 6 (i 407.A 7 P), an inscribed olive leaf. For singular *πέταλον* used of a plant's leaf, cf. e.g. the herbal P. Tebt. II 679 fr. 2.2 (MP² 2094) with A. E. Hanson, *Pap. Contex.* XXII (2000) i 990.

I have also considered the possibility that *π[ε]τταλον* here is used of a metal leaf, to be written on (cf. XLII 3068 2), or that *π[ε]τταλον* is the end of another plant name, such as *μυρσιν[ε]ταλον* or *περτεν[ε]ταλον* (preceded by *ψ*). In that case, one would have to assume a longer line length, either throughout the text, or for every line except the first of each recipe. But since certain of very probable supplements produce a single left-hand margin as shown in the transcription (cf., besides the supplements printed, 4, 5, 8, 14, n.), it seems fairly reasonable to suppose that the margin is correctly placed there.

2 φόρι, I. φέρις. *φορέω* is often used of an amulet, e.g. Alex. Tall. *Therap.* 8.2 (ii 375.23, 377.3, 7, 14 P).
3 κρεβάς, I. κρεβάς. On styes, cf. e.g. ps.-Gal. *Int.* 16.5 (iv 771.4–6 K. = 811.4 Petri); *Idem.* 7.84 (CMG VIII.1 330.23–331.6); Paul. *Aeg.* 3.22.14 (CMG IX.1 177.3–4).

4] αἱ. Perhaps *μύρμη* [sic], *μ* being represented by a high trace near the top of a. Cf. *Cynatides* 2.25.10–11 K. (p. 156) ὁ σὸν κοινοὶ μύρμηκες ἀποκεφαλίζονται τοῖς βλεφάρουσιν τοῖς βλεφάρουσιν τὰς ἐν αὐτοῖς κρεβάς θεραστίου. Decapitated flies were used similarly: cf. e.g. Gal. *Comp. Med.* Lib. 4.8 (iii 807, 7 K.), ps.-Gal. *Rem. Parac.* 2.4 (iv 413.3–4 K.); *Idem.* 7.84 (CMG VIII.1 330.29–30); Paul. *Aeg.* 3.22.14 (CMG IX.1 177.3–4). But *μύρμη* [sic] would be hard to reconcile with the first trace, and the Attic form *μύρμη* is unlikely here. For the uses of ants in medicine, cf. I. C. Beavis, *Insects and Other Invertebrates in Classical Antiquity* (1988) 208.
4φ[α]κεφαλίας. Cf. *Cynatides* 2.25.10–11 K. (quoted above), 3.28.6–7 K. (p. 214) μύσας ἀποκεφαλίζονται.
Paul. *Aeg.* 3.22.14 (CMG IX.1 177.3–4) μύσας τῆρ κεφαλῆν ἀποβάλλοιτα.

4-5 ψ[] τοῦ τραχήλου. e.g. [] αἱ. Cf. τῶ λοιπῶ σώματι in the passages on the use of decapitated flies (4 n.). The fluid exuded from the wound is apparently supposed to heal the styes.

7–8 For this use of aliphum, cf. Disc. 3.80.3–6 (ii 95.4–97.6 W), ps.-Disc. *Emp.* 1.40.3 (iii 165.22 W). The Cynratic was the most potent: cf. Disc. 3.80.2 (ii 94.15–95.2 W), Gal. SMT 15.12 (iii 90.17–91.2 K), Plin. *NH* 19.40. For sharp-sightedness in the papyrus, cf. *Suppl. Mag.* 94 → 1 4–6, MPER NS XIII 10.35–6 (AMP² 243.4, 5243 iii).

7 ἐξὺ[δ]ορκίαν or ἐξὺ[δ]ορκίαν. The initial trace is a speck at mid-height.
8] χρεῖου, I. -χρεῖου. Both *συχρηῖος* and *ἐπιχρηῖος* are found in the imperative middle, and either would fit.
9–10 ἱς (l. εἰς) χαρτίον γράβ[ε]ι. e.g. γράβ[ε]ι. The imperative (γράφ[ε]ιν, γράβ[ε]ι) is not excluded, but a conjunction would not be easy to accommodate before φόρι (it): αἱ seems an unlikely reading there (cf. n.).

For such amulets, cf. e.g. PGM VII 197–8, for discharge from the eyes; 193–6, for a scorpion sting; 218–21, for daily fever with shivering fits.

10] υβριε[] . . . χ. αθρ[] υ. Before χ, the lower right-hand arc of a circle; the turn-up of e or c a long upright descending below the lines, p or i. At the end, θρ[] υ would be suitable. For the magic formula, cf. PGM VII 197–8 *πρὸς βίβρα ἀβδαλάν ἐπιχρηῖος ἐξ ἐξέρηρ καὶ χαρτίου ρομφαλοσσομβροκαλοσχηρ*. Marcell. *Emp.* 8.58 (CML V 128.9–11) *Hec estiam remedium indubitata imperis oculorum, si puerentibus prohibebit scriptum in charta vitagine: ΚΟΥΒΡΕ ΦΙΟΠΕΙΡΑΦ ΤΗΔΙΟΥ, δε σὸν φόρη καὶ σὸν ἀνομοῖ, quod ad colium dolentis licito suspendi debet*.

11 The lacuna at the start of the line will have contained the end of the magical formula.
] αἱ. The first trace is the right-hand end of a high horizontal, perhaps τ or c.

12 πρὸς κρατ[έ]λην: κεφαλήν is another possibility, but would oddly imply that the remedy relieves conditions affecting the head in general. *σφ]λην*, *hermia*, and *σο]λην*, 'bile', are too short and less well suited to the remedy than *κρατ[έ]λην*.

12–13 Ἀλεξανδρείας [] χαμαιδάφ]νης.] αἱ is represented by the top of an upright. The chamædaphne (*Plantago patens* L.), sometimes called Alexandrian, could be used to treat a headache: cf. Plin. *NH* 24.12, Disc. 4.147 (ii 289.16 W), ps.-Disc. *Emp.* 2.42.4 (iii 165.19–20 W), a recipe for a piston against colic, has χαμαιδάφνης Ἀλεξανδρείας. With a margin further to the left, other possibilities would be available, e.g. Ἀλεξανδρείας [] βάρνης ἢ μάρσι]νης, but cf. 1–3 n.
13 εἴρας. The reading is not in any real doubt: the remains of the ligature connecting ε and ι are visible.

CF. PGM IV 259 φέρει εἶρας (in a different context).

14 Ja. The wide interlinear space indicates that this line is the first of a new recipe. Possible supplements include e.g. πρὸς ἐπὶ/ἴα, πρὸς χίμα/ἴα, πρὸς θυόχυμ/ἴα; cf. next n.

κυκλαμένους, ἰ. κυκλαμένους. On the uses of cyclamen, see Dsc. 2.164 (f 228.8–230.10 W), Gal. SMT 7.60 (xii 10.10–12.3 K), Plin. *NH* 35.114–15, 139–4, ps.-Apul. *Herb.* 17 (CML IV 52–3).

15 ἔ, 'or', rather than a quantity, since the unit is not specified and quantities are not given elsewhere in this text. It will have been followed in the next line by a second genitive and the part in the accusative, e.g. ἄζων.

16 Jov. . . [After τ probably α. The surface at the end is blank but ink may have been lost to abrasion.

M. HIRT

5246. RECIPES

100/ro8(d)

8.2 × 8.6 cm

Second/third century
Plate X

On the back of a register, with text running in the same direction, part of the upper right-hand side of a column, written across the fibres. The upper and right-hand margins, and perhaps the original upper and right-hand edges, are preserved in part. It is not clear how much is lost on the left. One tiny scrap remains unplaced.

The cursive hand is comparable to that of XLVIII 3364 (209) and to the first hand of III 513 (184). Initial υ is given a diacresis (4).

The fragment contains two recipes. The second begins on a new line (12), the end of the previous line being left blank. The first is a remedy for hot podāgrā (7). The subject of the second cannot be determined. The first recipe identifies the person from whom it was obtained: Maximus the stone-cutter. This is not uncommon (cf. 5244 introd.), but here the recipient has added his own experience, as in e.g. P. Mich. XVII 758 H 8–9 (MP³ 2407.01). To judge from 1, Maximus was not a professional doctor, and this prescription was for a well-known medicine.

		] ελαβον παρά Μαξίμου λαζού
		κευθῶζε. * * λωστέριμον ἐνβε-
χθέντος	χυλῶν	ἔψε μετ' ἐλαίου και ποιή-
cas		κρηρωτήν ἐπίθεσ· εὐθέως ὕ-
		]λλει τὴν φλεγμονήν. ἔλεγεν
5		] ἔψεω διὰ τὸ ψυκτικὸν εἶναι τὸ
		] πρὸς θερμὴν ποδάγραν. ἐγὼ
		] χυλῶν ποιεῖν ὁμοῖ δινα-
		] χηται τὰ σπέρματα . . α
10		] γ τὴν κρηρωτήν κ[
] [

]τον ἐπ[ί]θεμα []
]παροαχ[]
] διαι[]

2 l. 4μβρε- 4 ὀ (second) 7 δ corr. from another letter?

'... I obtained from Maximus the stone-cutter ... prepare: boil the juice of soaked linseed (...) with oil and having made ... ointment, apply it. Immediately ... (it reduces (?) the inflammation. He said (that) ... to boil ... due to the cooling effect ... for hot gout. I (on the other hand (?)) ... to make a juice that can (?) ... at once ... the seeds ... the ointment ...
'... external application ...'

1] ελαβον. The first trace is the upper right-hand arc of a circle. Perhaps] ὀ ελαβον, preceded by ποδάγραν (e.g. Paul. Aeg. 7.17.78 (CMG IX.2 366.9)) or ποδάγραν δοκιμώτατον (Aët. 12.13 (91.2–3 K)).

2 κευθῶζε: παρακευθῶζε and κατακευθῶζε are less likely. For κευθῶζω introducing instructions, cf. Orib. *Syn.* 3.79 (CMG VI.3 89.19) ἄδε χρῆ κευθῶζεν; Aët. 7.102 (CMG VIII.2 356.14) ἤ ἄουως κευθῶζε. 114 (CMG VIII.2 383.13) οὐτω δὲ κευθῶζει Alex. *Tracl. Therap.* 11 (ii 573.11 R) κευθῶζε δὲ οὐτω. If [ποδάγραν] ὀ is correct in line 1, [ὄουως κευθῶζε] will fill the space.

2–3 λωστέριμου ἐνβερωθῆτος (l. 4μβρε-) χυλῶν. If [ὄουως κευθῶζε] is right in the preceding line, there will be nothing missing between ἐνβερωθῆτος and χυλῶν. Linseed juice, which can be obtained by soaking or boiling the ground seeds in water, was used for various plasters and poultices, including those for gout; cf. e.g. Paul. Aeg. 7.17.3, 7, 31 (CMG IX.2 348.19, 21, 352.2, 355.7). Linseed poultice is recommended for ποδάγρα by Ruf. *Podagra* 35 (p. 35 Mœrland) and Anon. Paris. 50.15 (524.4 Gouliou). Linseed agglutinates wounds, disperses inflammations, and draws out and brings to the surface collections of matter, producing a blister; cf. Cels. 5.2.1, 11, 12 (CML I 191.1–2, 193.1–7, 9–10). Linseed poultice disperses any internal or external inflammation; cf. e.g. Dsc. 2.103 (i 177.5–17 W), Cels. 2.33.6 (CML I 98.13–15), Orib. *Coll. Med.* 9.29 (CMG VI.12 31.8–24). The poultice called ἀμύλακος, made by boiling linseed and meal in water and then pouring on oil, was commonly used in cases of inflammation; cf. Annyll. 39, Orib. *Coll. Med.* 9.24.6 (CMG VI.12 26.23–6). 4 κρηρωτήν probably the object of ποσ[ί]λος. A similar instruction is found in connection with a cerate for ποδάγρα at Alex. *Tracl. Therap.* 12 (ii 575.26–7 P), καὶ λαοὺς ποτὶς κρηρωτῆν καὶ εἰς ὀδόντων ἐπιπλάκος ἐπιθεῖ. Basic cerates or ointments were made by mixing white wax and oil. They often included various ingredients such as animal fat, resin, and various medicinal substances. They were used for treating various conditions, including pain in the feet and joints. An adjective could specify the consistency and quality of the cerate: e.g. ὑγρὰ, ἡμιπασερράχη, ἀπαλωτέτη; ὑγρὸν κρηρωτήν would fit if there is nothing missing between ἐνβερωθῆτος and χυλῶν at the start of 3. Moist cerates had cooling properties and were recommended for any kind of inflammation, e.g. Gal. *SMT* 1.6 (si 391.7–392.1 K); Orib. *Coll. Med.* 44.24.12 (CMG VI.12 149.6–9). They were used, among other things, in cases of gout, e.g. Orib. *Ec.* 75.13, 15, 18 (CMG VI.12 245.29, 31, 246.4).

εὐθέως probably goes with what follows; cf. e.g. *Hippiat. Cassi.* 1.33 (ii 151.8 O–H) εὐθέως ὑγρῶς ἐπιθεῖται *Hippiat. Ludg.* 204 (ii 313.13 O–H) εὐθέως ὑγρῶς ἐπιθεῖται. Otherwise we might have expected it to be placed before ἐπίθεσ; cf. Gal. *MM* 6.6 (x 454.8–9 K) εὐθέως ἐπιθεῖσθαι.

4–5 ἔ]. Forms of ὑγρῶς and ὑγρῶς would suit the context; cf. previous n.

5]λλει: perhaps κατακευθῶζε; cf. e.g. ps.-Gal. *Rem. Panth.* 1.3 (xii 334.13–14 K) κατακευθῶζε τὰς ἀρρομῶνας φλεγμονὰς. κρ[ε]λλει is also possible; cf. e.g. Dsc. 5.153.2 (iii 104.13–14 W). ἀνακευθῶζε seems less suitable in this connection. (E.g. ἔ]γρῶζον κρ[ε]λλει would fit if ἐνβερωθῆτος χυλῶν is right at 2–3* (WBH).)

6 ψυκτικόν. Plasters and poultices made from linseed usually have heating properties; cf. e.g. Cels. 2.33.5, 6 (CML I 98.6–8, 13–15); Gal. *SMT* 7.11.17 (xii 62.15–18 K). However, Galen remarks that linseed boiled in

water produces a cooling juice (*San. Tit.* 6.14.10 (vi 446.6–7 K. – CMG V.4.2 195.266–7?)).

6–7 γδ [I. E.g. ποδαγραμιόν, ἔγραμκτρον, [Ζλαιου. WBH suggests φάρμακον]: cf. 5 n. for the length. 7 θεμινὸν ποδαγραν. For the distinction between hot and cold ποδαγρα, see Cacl. *Aur. Tand. Pass.* 5.2.31 (CMI. VI.1 872.12–18); cf. *Anon. Paris.* 50.1 (550.3–8 Garofalo).

ποδαγρα includes not only gout (i.e. deposits of monosodium urate crystals in the joints, particularly in the big toe), but also conditions defined more generally as 'arthritic pain in the feet', with symptoms similar to those of gout. For a definition of the disease, cf. e.g. *Pr.-Gal. Def. Med.* 293 (xix 427.6–8 K.), *Aët.* 12.2 (50.15–31.16 K.). On the disease in general, cf. e.g. *Hp. Aff.* 31 (vi 242.16–244.3 L.); *Apb.* 6.28–9 (ii 570.5–7 L. = 414–1–3 Magdalenae); *Cels.* 4.31 (CML I 181.20–185.2.1), with W. G. Spencer's appendix, in the Loeb edition, I 465–51 *Ruf. Podge.*; *Aret.* 4.13 (CMG II 82.17–85.17); *Gal. Comp. Med. Lib.* 10.2 (xiii 331.17–336.2 K.); *Hipp. Apb.* 6.28–9 (sviiiA 40.45–44.17 K.); *Anon. Paris.* 50 (250–56 Garofalo); *Cacl. Aur. Tand. Pass.* 5.2.27–31 (CMI. VI.1 870.1–884.16); *Aët.* 12; *Alex. Trall. Therop.* 12 (ii 501.8–185.24 P); *Paul.* *Acg.* 3.78 (CMG IX.1 299.8–309.31); *R. Portez, G. S. Rousseau, Gout, the Psittacian Malady* (1998) 13–21; *S. Byl, AC 57* (1988) 89–102; *D. Gourévitch, Le Triangle hippocratique dans le monde gréco-romain* (1984) 217–47.

In the *παργύη*, ποδαγρα is mentioned only in two private letters, P Ryl. IV 555.4–5 (Philadelphia, 257 BC) and SB XXIV 16592.2.0 (Alexandria?, n), and in the titles of two medical recipes, SB XIV 12142.3–4 (ii–iv) MP³ 2407.2) and XXVIII 17135.1 (Lycopolis, vi MP³ 2410.17). SB XIV 12142 (vi MP³ 2407.1) is also a remedy for ποδαγρα; cf. L. C. Youie, ZPE 27 (1977) 141–6; A. M. Izenci Biv, in I. Andorlini (ed.), *Estato proustorio del Corpus dei papiri greci di medicina* (1998) 66–9. A recipe in GMP II 9 (vi–viii; MP³ 2423.60) might have been used against ποδαγρα; cf. → 1–3 n. Cf. also XXXI 2532 (MP³ 1757.1); P. CxyBR Inv. 4000 (Am. Stud. Pap. LII) MP³ 1335.01 p. 4.22 (epigram).

7–8 ἔγω [δὲ is likely.

8–9 E.g. δὲω[εθαί.

9]χηται: WBH suggests (-)βρο[χηται (cf. 2–3), in a clause introduced by e.g. ἕως ἂν ᾖ βαί.

10 two letter-τρωα.

11 The first recipe will have ended in the lost opening part of the line. The remainder is left blank.
12 τω ἔη[βραμν [This must belong to the title of the new recipe, e.g. ἄλλο κέλλιτρον ἔη[βραμν or κέλλιτρον ἔη[βραμν or παρόλιτρον ἔη[βραμν: the first would be of a suitable length if χη[δ]ν followed ἐ-βραμν[χ]βρατος immediately at 2–3. Cf. e.g. ἄλλο ἐπιθεμα κέλλιτρον at *Orib.* *Ec.* 48.19 (CMG VI.2.2 208.17), *Aët.* 5.92 (CMG VIII.2 75.13); ἄλλο κέλλιτρον at *Aët.* 12.54 (94.2 K.), 15.15 (95.9 Z.); παρόλιτρον ἐπιθεμα at *Aët.* 16.48 (66.6 Z. = 364.29 Romano, in A. Garzya et al. (eds.), *Medici bizantini* (2006)). Then perhaps a further specification: cf. e.g. *Gal. Comp. Med. Loc.* 10.3 (xiii 336.5 K.) ἐπιθεμα ποδαγραμιόν, ἀρθρωμιόν; *Orib.* *Ec.* 75.6 (CMG VI.2.1 244.27) ὄνη ἐπιθεμάτων ποδαγραμιόν; *Coll. Med.* 8.47.22 (CMG VI.1.1 300.14) ἐπιθεμα ἡμετακώδης *Ec.* 48.18 (CMG VI.2.2 208.14) ἐπιθεμα ἡσπιτινόν.
13 παροχ[η]. Either παρὰ χη[with the name of the source (cf. 1), or e.g. a form of παραχέω, παραχλεύανω, or παραχέω, or a related word. (Perhaps παραχ[ρήω, in a description of the remedy's effects' (WBH).)

M. HIRT

5247. RECIPES

9 x 2 15 cm

Second/third century

Plate X

On the back of what appears to be an account, and upside down in relation to it, remains of two columns with an intercolumnium c. 2–2.5 cm wide. A blank space 1.2 cm deep under i 19 may represent the lower margin, unless a short line is lost on the left.

The hand is a neat semi-cursive; cf. e.g. LI 3614 and SB VI 9526 (first hand), both of 200. Each recipe begins on a new line, projecting into the left-hand margin by about 1 cm; the end of the previous line is left blank. The first letter of a recipe may be slightly enlarged. The line length is uncertain, but some indication may be given by the supplements discussed at ii 4–10; those proposed for ii 7 would give a first line about 8.3 cm long holding about 23 letters. There is a marginal addition in a second hand at the level of ii 12.

The recipes are miscellaneous and short, recalling those of such collections as VIII 1088. Among the conditions recognizable in col. ii are ophthalmia (2), coughing and bringing up blood (4), asp bites (7), deafness (9), shivering fever (14), and possibly lycanthropy (18).

Col. i

Col. ii

			]	καλω[
			]	λαμου α[
			]	καταχρη[
			πρ(όε)[	βήκη και αιμα[τρος	
			]	μετά κρόκον	τοδ
			]	ἀρκούν ἀνελα[όμενος χρω.	
			πρ(όε)	ἀποδοθήκετον[ε	
				τιζόμενη ποσει[
			]	πανάμο	
				καφρός παύων χ[
				γας ἐχχχχχ[ἀτ[ζε.	
			β]ητ[της	εφεδρον ἀναβο[λ[
			]	ἐκάρου	πρ(όε) [] φρ.
				ζην . ε . ου π . [
				αυτ . .	
				ὑσαι ἀχχχχχ[ροτο[
			]	ε . ε . ἀγρια . [
			]	πὸν π[εχχχχ[ροτα	
			]	πρὸς τὸ αβ[τ[θ	
				αυ]θρωπιαν [
				]	και τα[
				]ρον [
				]αμιον ἐάν	]θμυ [
				]α κίεκος κα . [	]ν κο . [
				]θαυμαζομ[ε	] χσ[
				foot?	

Col. i 3 β – βροχμιαί 18 I κίεκος

Col. ii 4 I βήκη 7. 12 σφ ϖ

Col. i

- 1 ... 1 ... lead (?) ... resin (?) 2 dr. ... the white ... (use) over tampons (?).
 ... resin ... (an equal amount) of each ...
 ... scraping ...
 ... litharge ... mix and use.
 ... anoint.
 ... eye (?) if ... leaves (?) of the castor-oil plant ... admired (...)

Col. ii

- 1 ... well (?).
 ... ophthalmia (?) ... smear.
 *Against coughing and (bringing up) blood ... with saffron ... enough ... take up (and use).
 *To those bitten by an asp (an antitoxine) is effective (when given to drink).
 *To stop deaf persons: warm (?) ... and linist.
 *Housecall (?).
 *To thrush out shivering fever ... butcher's broom (?) ... the sufferer (...)
 *... for the same thing ... -anthropy ... and ...'

Col. I

- 1] ; traces on the line, with missing papyrus or abraded surface above. The last may be the drachma sign, though it appears to be written differently at 3 below.
 2. Contrast 3 β with overline. For similar inconsistency, cf. e.g. 5242; I. Andorlini, *Trattato di medicina in papiro* (1995) 56.
 2-3] μοιλα: e.g.] μοιλ[βου,] μοιλ[βδαινα,] μοιλ[βδωδω. etc. Lead, μόλιδος or μόλιβδος, is effective against running eyes, bleeding, and various types of sores, among other things: cf. Dac. 5.813 (iii 54.4-11 W). Galena, μόλιβδαινα or μόλιβδαινα, is used e.g. in certain types of plasters: cf. Dac. 5.85 (iii 56.18-57.10 W); Gal. SMT 9.3.22 (xii 229.9-230.5 K). μόλιβδωδω or μόλιβδωδω can be used e.g. of a skin colour: cf. Gal. *Curr. Rat. Ven. Sect.* 10 (xi 282.9 K).
 3] ... ωγε: the first trace is an upright. βήγγινος is likely: cf. 7 below.
 4-5] του λε[[ε: e.g. φού[του λε[[ε. Cf. 5248 f. ii 3 p.
 5] ηναυμο. WBH suggests e.g. ητάνω μιλ[τάνω χρῶα at or near the end of a recipe (noting the blank end of the following line): cf. Gal. *Comp. Med. Lec.* 8.2 (xiii 134.7-8 K) χρῶα δὲ καὶ ἐπι παρωσικῶν ἐξηφθ. ἔπειτα μοιῶν ἐν βόβινω.
 7 βήγγινος. On the different sorts of resin and their therapeutic use, cf. e.g. Dac. 1.71 (i 67.19-70.14 W); GMP I ii f. A.11 n.
 8] η ἐκέρου. WBH suggests e.g. ἐο[η ἐκέρου, noting that such expressions are commonly found in recipes before the final instructions, e.g. Gal. *Comp. Med. Lec.* 8.7 (xiii 204.15 K).
 10] ... The first is an upright closely followed by an S-shaped trace, joined at the top by a crossbar. The crossbar is joined from below, perhaps by an upright of which only the top survives, and then by an upright with a right-pointing final at the foot, perhaps abraded above, then to the right of an abraded patch, another high trace. (WBH doubtfully suggests ηβ for α(α) ηβ(α).)
 11 η. Perhaps μιλ[βδωδω: cf. Asclep. *Ap.* Aët. 15.14 (60.9 Z) μινωμινω Δωφ.
 11] ἔξωου ἀρ[έζου, κατ[εξέζου.] ἔξωου.
 13 λιθάργου. Litharge (lead monoxide) is common in plasters: cf. Dac. 5.87 (iii 57.15-61.4 W); GMP II 5 iii 23 n., with further references, adding P. Scholl 14.11 (vi; MP³ 2403.01), BKT X 25 | (vii/viii; MP³ 2355.024); W. C. Till, *Die Arzneikunde der Ägypter* (1991) 50-51.
 14 μί[γε: cf. P. Mich. XVII 758 D 9 (MP³ 2407.01) μίγεω χρῶα, Gal. *Comp. Med. Gen.* 2.19 (xiii 545.16 K) μίγεω καὶ χρῶα, Aët. 8.50 (CMG VIII.2 484.3) λιναία μίγεω πάντα καὶ χρῶα, and on the use of μίγεω alongside μίγεον in the present, Gignac, *Grammatik* 2355.024.

15]ομῶνους. Possibilities include ἀρχ[ομῶνους, γρηγομῶνους, γρηγομῶνους. Cf. e.g. Gal. *Comp. Med. Gen.* 3.9 (xiii 647.22 K) ποιεὶ δὲ πρὸς ἀρχομῶνους ἰδρωσας. ps-Gal. *Rem. Pansib.* 2.16.32 (xv 483.18 K) πρὸς τοὺς γρηγομῶνους ἐτρήφους; Orib. *Exp.* 4.62 (CMG VI.1 460.13-14) πρὸς ... τοὺς τριβομῶνους καὶ τοὺς ἀμωδωσῶνους.

16 α[μῶνους ἀμῶνους, ἐπια[μῶνους.
 17]ημῶν ἀβ[β[ωδω is likely: cf. next n.
 18]α κίσεος. I. κίσεος; perhaps φάλλα κίσεος. For the genitive singular of i-stems, see Gignac, *Grammar* ii 79-8; cf. e.g. SB XXVIII 17134 f. B iii 6 (PSI X 1180, MP³ 2421) πεντέρος, 14 πεντέρο(ς). Cf. esp. Dac. 4.161.2 (ii 306.9-11 W) τὰ δὲ φάλλα τριφθέτα μετὰ πάσης ἀλφύτου ὀφθαλμῶν οὐσθήματα καὶ φλεγμονὰς παιδὶ κατ[λ; in general on the castor-oil plant, D. B. Sandy, *CE* 6a (1987) 49-51; id., *The Production and Use of Vegetable Oils in Ptolemaic Egypt* (1989) 35-54, 101-6.

κα] . The last is the top of a descending oblique on the edge, e.g. A. 19]θαυμαστ[. WBH suggests θαυμαστ[αμῶνους, of the remedy in question: cf. e.g. Gal. *Comp. Med. Lec.* 4.7 (xii 747.9-10 K) εὐχρῶν καθ' ὑπερβολὴν καὶ θαυμαστῶνους ἐπὶ τῶν ἰσχυρῶν (of an eye remedy), 5.5 (xii 869.16 K) μιληκὴ θραψή, ἐπὶ πολλῶν θαυμαστῶν, and the common use of θαυμαστῶν and θαυμαστῶ.

Col. ii

- 1] καλω[; e.g.] καλ[φ[ε. The first trace is apparently the foot of an upright on the edge. WBH suggests ποικ[καλω[at the end of a recipe: cf. e.g. ps-Gal. *Rem. Pansib.* 2.8.6 (xiv 429.11-12 K) ἐνὶ ἐχλωδῆς ἐντιθέ- μους τῆ βεβρωμένη μὲθ' οὗ καλω[.
 2]μαυα. Probably δόβα[μαυα or a compound. WBH, noting that the name of a condition suggests the opening of a recipe, suggests πρ[ε(δ) δόβα[μαυα beginning on the same alignment as 7, 9, 11, and 14.
 3] καυα[ε[. Probably καυα[ε[ε[.
 4 4 πρ[ε(δ) βήκα (l. βήκα) καὶ αἰμαίως ἀναγωγῆ or πτίεως read and supplied by WBH: cf. for the spelling MP³ 2386 (ed. I. Andorlini (i 1 n.)) iv 15]πρ[ε(δ) βήκα (with GMP II 1, pp. 12-13), PGM VII 209, 209, and for the restored title e.g. Gal. *Comp. Med. Lec.* 7.3 (xiii 70.16-47 K) πρὸς βήκα καὶ ἀσφυκτικὸς φθίσεως καὶ αἰσχυρτικὸς καὶ βουνακτικὸς. 8.7 (xiii 202.15-16 K) πρὸς φητακτικὸς ... καὶ βήκα καὶ ἀναγωγῆς ἀμαστος ἀναγωγῆ is found e.g. in P. Ant. III 124 f. 3(β).4-5 (MP³ 2380.01), 128 f. 1(δ).4 (MP³ 2365.1), πτίεως αἰμαί[φω in MP³ 2386 iv 6-7.
 5 κρῶν[ε for the use of saffron in cough remedies, cf. Andorlini, *Trattato* (i 1 n.) iv 37-8 n. (pp. 108-9); GMP II 12.2 n.
 5-6 τῶ] ἀρούσι. E.g. μιλτος τῶ] ἀρούσι: cf. J.-L. Fournet in I. Andorlini (ed.), *Testi medici in papiro* (2004) 284 on SB XXVIII 17138.3 (MP³ 2410.15). Honey is common in cough remedies, cf. e.g. Scribon. ap. Gal. *Comp. Med. Lec.* 7.3 (xiii 67.8-13 K), a recipe including saffron and μέλιτος τὸ ἰσάριον; GMP II 12 intro. (pp. 176-7).
 6 ἀνω[μανος χρῶα suppl. by WBH, as commonly at the end of a recipe: cf. e.g. Charit. ap. Gal. *Comp. Med. Lec.* 7.2 (xiii 49.13-14 K).
 7 πρ[ε(δ) ἀκτινοδοφῆτω[ε: cf. GMP II 5 iv 26 (MP³ 2423) ἀκτινοδοφῆτωκος, in the title of a recipe. See in general Aët. 13.22 (182.20-28.13 Z), περὶ ἀκτινοδοφῆτωκος; GMP II 5 intro. (p. 73).
 7-8]τ[ε(δ)μῶνη πρ[ι(α) πρ[ι. In this position near the end of a recipe is likely to represent πρ[ι(α)ε[. Before it, perhaps θριακὴ πρ[ι(α)μῶνη: cf. Aët. 13.22 (182.10-11 Z) παραβάδω δὲ ποικ[εῖ καὶ ἑὶ ἐξιδῶν θριακὴ κατὰ τῆς πλῆγης ἐπιτηθέτω καὶ ποτιμῶνῆ. After it, WBH suggests e.g. καλω[ε: cf. i n.
 9-10 CE. e.g. II 234 (MP³ 2360.2), recipes for ear remedies.

9 κωφῶς παύσει. For κωφῶς in recipe headings, cf. e.g. ps-Gal. *Rem. Pansib.* 2.3.11 (xv 405.9 K) πρὸς τοὺς ἐκ γενετῆς κωφῶς. For compound forms, cf. e.g. Gal. *Comp. Med. Lec.* 3.1 (xii 650.6-7 K) πρὸς δὲ τοὺς ἰσοκωφῶς, αἰετὶ βουκαφῶς αἰετὶ θυροκωφῶς ἔβουον τὰ ἰσοκωφῶς.

χ[ε e.g. χ[ι(δ)ω, χ[ι(δ)φ[ε. Cf. e.g. Apollon, ap. Gal. *Comp. Med. Lec.* 3.1 (xii 651.13-15 K) = AM-19 von Steud. (p. 552) πρῶκου χῶδω καὶ ἱσῶν μύρον μίξας ἔσκατα, χῶδω βοτάνη καὶ ἀγρίαν καὶ μύρον βόβινου

μήτε ἔνεταξε (for hardness of hearing), Aët. 6.80 (CMG VIII.2 225.18–22) πρὸς δυσκοφίαν... κἀλλιστον δὲ καὶ εὐκωδον ἀργύριον γὰρ μέλιτι ἢ γὰρ φύλλων ὁ χρυδὸς ἀνὸ ἄξει ἔγχυμαστος· ἢ ἄλλων ἀλγῆς καὶ χολῆν ἀδρῆ. ἅμα θυμαίναν ἐγχυματίσει. Both are paralleled in 234 ii (γυδὸς: 43, 49; χολή: 30, 45).

9–10] πρὸς ἐγχυματίσει. Probably χρυδός or θερμά]πρὸς with χολῆν or χολή: cf. e.g. Aët. 6.80 (CMG VIII.2 225.9, 22), ἀεὶ]πρὸς another possibility; cf. e.g. Aët. 10.10. ap. Gal. *Comp. Med. Loc.* 2:1 (aiti 651.17–652.1 K.). 234 has χρυδών (I, 8, ii 6, 13, 22), θυμαίνος (ii 144, 48, 49), and λευκόν (ii 3); cf. ii 42 ἐγχυμαστος.

11 ἔθερον. Another name for ἴσπυρος, *Equisetum tibeticum* L., 'horsetail'. Cf. Dec. 4.46.1 (ii 203.9 W) ἴσπυρος: ὁ δὲ ἀναθῆσιον, οὗ δὲ ἔθερον καλοῦσι; Plin. *NH* 26.133 *alii hippurii, alii eribedum, alii anathesim vocant*. It is astringent and diuretic, and its parts are good for a variety of conditions, such as bleeding, dysentery, cough, ruptured bladder, intestinal hernia, spreading sores, etc.

ἀναθῆσιον. Probably a form of ἀναθῆσι, ἀναθῆσιον, 'lever or instrument for lifting', is also possible; cf. e.g. *Orth. Coll. Med.* 45.6.2 (CMG VI.2.1 164.20). In medical writings, ἀναθῆσι may refer to throwing up food (*Gal. Comp. Med. Loc.* 8:3 (xiii 146.4 K.)); the removal of a tumour (*Orth. Coll. Med.* 45.2.6 (CMG VI.2.1 163.3)); the delaying of a treatment (*Alex. Trall. Febr.* 2 (i 317.23 P)); the bubbling up of deadly purulent discharges (*Aët. Promot.* 57 (69–73 Hm)).

12 πρ. πρ(δ) [] ap. . This marginal addition in a second hand may be intended to make good the apparent omission of a title for the recipe at 12–13. The trace after the break in the right-hand arc of a circle on the edge with the surface missing to the left; e.g. 17]6 (WBH) may be possible. The final trace terminates in an ascending oblique rising above the other traces, perhaps an indication of abbreviation. E.g. ἀρ(α)ρ(α)ρ(α) δὴγμα) may be a possibility, as in Aët. 13.18 (272.16 Z.) πρὸς ἀρ(α)ρ(α)ρ(α) δὴγμα.

12 π. | : or possibly πρ|.

13 αὐτ. . . : the termination is rubbed and illegible.

14 ἀεὶ read by WBH; cf. 9 πρ(α) for the so-called infinitive.

ἀργυροστολ, ἀργυροστόκος (στ-σθ) and ἀργυροστόκος are found in magical papyri (PGM VII 221, 228, P. Kelle I 85b.1; cf. the index to Suppl. Mag.), the *Cyranides* (2.16.6–7 K. (p. 142), etc.), and astrological texts, and in lexica and scholia as glosses, but apparently not in medical literature; for example, Galen in his definition of ψευδολος offers ἄρα ἅμα πρῆρῶνται τε καὶ βροχίτες κτλ. (*Diff. Febr.* 2.6 (vii 347.5–6 K.)). Cf. K. Deichgräber, *Parabemsenne ... bei Galen* (1957) 23, 34–8; CLGP I.4.4 Aristophanes 11.11 n.

14–15]] πρ. ε ἀργίαν []. Possibly μωπ]εργυ ἀργίαν. On μωπείνη ἀργία, *Rauis aculeatus* L., 'butcher's broom', cf. e.g. Dec. 4.144 (ii 286.17–287.14 W).

17] πρὸς τὸ αὐτ(ρ). WBH suggests that a new recipe for the same condition begins in this line, supplying ἄλλο) at the start (on the name alignment see at 7, 9, 11, and 14). 17–18]] ἀ]βρωμίας []. WBH recognizes the accusative singular of ἀναθῆσιον or ἀναθῆσιον (rather than μωπείνη ἀργία, which does not seem to have been discussed by medical writers of the Roman period), supplying e.g. ποτὶ καὶ πρ(δ) λυ]αθῆσιον (or κεν]αθῆσιον); or if a new recipe begins in line 18 (but cf. 17 n.), πρ(δ) λυ]αθῆσιον (or κεν]αθῆσιον), projecting to the left as at 7, 9, 11, and 14. On lycanthropy and its treatment, cf. Marcell. *Sid. ap. Aët.* 6.11 (CMG VIII.2 151.21–152.12); M. Ullmann, 'Der Werwolf', *Wiener Zs. f. d. Kunde der Medicin.* 68 (1907) 171–84, esp. 175–6; N. Meuzger, *Wölffennaschen und nächtliche Heimgängen* (2011).

21]θυμαί: e.g. a form of θυμιαδον, θυμιαδμα, θύμασ, etc.

5248. RECIPES

15 2B.42/A(a)

Fr. 1 12.5 x 10.7 cm

Second/third century
Plate XI

Nine fragments, with text written across the fibres. The largest, fr. 1, gives the upper parts of two neighbouring columns with upper margin preserved to a depth of 1.8 cm and an intercolumnium about 1.7 cm wide; col. ii, preserved to its full width, is about 10 cm wide, and a line holds about 30 letters. On the front, upside down in relation to the text on the back, remains of an account.

The hand is a small informal version of the Severe Style, sloping slightly to the right. β may have a long flat base, projecting to either side. The oblique of μ joins the second upright near the top. The circle of ο may be open on the left. α may have a pointed or rounded loop, and its tail is often raised to join the next letter. The base of ω is nearly flat. The execution is highly variable; for example, the lower part of fr. 2 gives a much more formal impression than fr. 5. Most letter forms are paralleled in the more formal hand of LX 4045 (Aeschines), assigned to the second or third century. For datable examples of the style, see e.g. XVII 2098 (*GLH* 198), probably of the first half of the third century; L. Del Corso, *Aegyptus* 86 (2006) 81–106.

A paragraph marks the beginning of a new recipe, the end of the preceding line being left blank (fr. 1 ii 6). The first letter of a recipe is slightly enlarged (fr. 1 ii i). There is a supralinear correction in the hand of the text at fr. 1 ii 7.

Fr. 1 ii gives two recipes for plasters. The first (1–5) is 'for suppurative inflammation of the head and swellings in the rest of the body'. The ingredients indicate that this plaster is agglutinative or cicatrizing; cf. e.g. Cels. 5.2 (CML I 191.1–6). No quantities are given. The instructions suggest that it is addressed to a student or has been copied directly from a manual.

The second recipe (6ff.) is for a black plaster for conditions including chronic fistulous ulcers and fractures. The treatment for such conditions usually consisted in the application of an agglutinative or cicatrizing plaster. This recipe was obtained from a certain Hephæstion. He may have been a doctor or a pharmacologist, or else a layman who used the recipe and passed it on. Fr. 3, 3 appears to give the name of another such person, Eleis. Cf. 5244 intro.

P. Mich. XVII 758 F 10–14 (MP³ 2407.01) offers a plaster that agglutinates and promotes cicatrization (πικροχρῆσθαι καὶ συσπυκνῶσθαι); cf. GMP I 11 fr. A.10 (MP³ 2399), perhaps ἀ]ακολλ[η]τῆ]ρ[α]ρ. For 'cicatrizing' plasters, cf. also P. Aberd. 10.13 (MP³ 2350), P. Mich. 758 B v. 7. The various types of plasters are discussed in Cels. 5.19 (CML I 201.7–205.33); cf. e.g. the collection in P. Mich. 758, with introd., p. 2.

Fr. 1
Col. i

		Col. ii
	] και	] προς κεφαλῆς ἀπόστασιν και ἐν τῷ [λ]οιπῷ
	]	κόματα φυσήματα· γῆν μέλαιναν και
	]	μάνναν και ὄξος σὺν ψού τῷ λευκῷ ὡς οἶδος
5	]μελι[	σκένδασας κατάχρει. νόει και ἐπὶ ἄλλω]ν ὡς
	] [	δύναται.
		παρ]δ' Ἐφαιστίνουος ἐμπλαστος μέλ[αινα
		ἦν] ἐλαβον π[α]ρ' αὐτοῦ ἐν πολλῇ ε[.] . . . αὐτῇ
		ποιεῖ] πρὸς κόλπους χρονίου πα[ρα]κολλα[
10		. .] τῶν[.] , ἐνωσ ποιεῖ και π[ρὸς] κατάχμα[-
		τα ἐ]στὶν ἀφ[λέν]μαντος
		. . . . . ] , ρωτων
		. . . . . ] τηρεν
		. . . . . ] α . . . α
	]] . . .]
15	] . . . [
		. . . . . ] ρ[

Col. ii
4 l. κατάχρει

Fr. 2		Fr. 3		Fr. 4
	. [.] , χραι[.]		] , . . . [
	δύς . [ . . . . . ] ]			]ν και ἰ α . [
	ειν . [.]		πα]ρδ' Ἠλέτος τρου[	] τουσκ[
	τιας . [ . . . . . ]		]ου κολοκιν . [ . . . . . ]	] χυλω . [
5	χρυσ[.]	5	] και αλ . [.]] [
	επε[.]		]
	. α . [.]		]
	βαλα[.]	Fr. 5		Fr. 6
	σαμ[ . . . . . ]			. . . . . ] υκτ[
10	αν . [ . . . . . ]			. . . . . ] , ογκ . [
	επε[ . . . . . ]			] ροσαμι[
	μι . [.]		χαλ]κάνθου	] , απο[
	γω . [ . . . . . ]		. . . . . ]	5] ε . [
	χλω[.]		]
15	λαβ[.]	Fr. 7		
	ταα[.]			
	κικα[ . . . . . ]		. . . . . ] , ερου . [
	. [ . . . . . ]		] υπο . . [

Fr. 3
5 second α written on α?

Fr. 8		Fr. 9
	. . . . . ] , νον μεν[.]] , . . .
	] εν ἄλλα . [.]	ἀρ]ιθμῶ ε
	. . . . . ] . . . . . [	. . . . . ] , ε
]]]
5	. . . . . ] ν (τριβάβου)	5]
	. . . . . ] , ενων (τριβάβου)]
	] αλε . . [.]]

Fr. 8
5. 6 Γ - τριβάβου

Fr. 6

3 Ἰρσοκαμί. Ε.ε. π]θε σ]μ] (αἰ[σ]ορραγίας, σ]μ]σ]τοσ ἀνομογνή, αἰ[σ]οσ]ννικισόσ, αἰ[σ]ορροϊδασ), perhaps in a heading. Alternatively, ἀσ]δ]ρσοκαμ]σ]ω ('St John's wort', *Hypericum* L.) In some case cf. e.g. *Dsc.* 1.154-6 (ii 161.4-163.12 W).

Fr. 8

6 'Probably -]μ]ένωσ, a perfect participle agreeing with a plural ingreditient' (WBH).

Fr. 9

3] . ε . . . The last trace may be ε (επιμ]βολωσ).

M. HIRT

5249. RECIPES

38 3B.89/E(2)B

5.1 x 4 cm

Third century

Plate II

The top of a column, with text running along the fibres. The upper margin is preserved to its full original height of 1-1.2 cm, and the left-hand margin to a width of 0.4 cm. A trace on the left-hand edge at the level of line 1 may belong to the preceding column. The back has been re-used for another recipe (5250), written against the fibres and running in the same direction as the text on the front.

The text is written in a slanting semi-cursive hand comparable to the first hand of P. Mich. III 158 (250). Besides the drachma abbreviation <, the scribe uses κ- for κε(καυμ]ένου) at line 5. A new recipe begins on a new line with paragraphus above (3), the end of the previous line being left blank. To judge by lines 4 and 5, the column width was about 7.4 cm and a line held about 25 letters.

Lines 1 and 2 give the end of one recipe, and lines 3-7 most of another. The second is for a version of a known eye remedy, discussed below. The first includes blister-beetles and raw pitch, a combination attested in remedies for skin diseases (VIII 1088 14-18 (MP³ 2409); ps.-Dsc. *Eup.* 1.121.2, 123.1 (iii 197.17-18, 198.21-3 W); Cels. 5.28.18B (CML I 252.1-3)) and alopecia (Plin. *NH* 29.110; Archig. ap. Gal. *Comp. Med. Loc.* 1.2 (xii 408.11-12 K.)) and in plasters for various conditions (e.g. Archig. p. 24.5-8 Brescia and ap. Aët. 3.180 (CMG VIII.1 351.27-352.1); Ael. Prom. 15 (52.25-30 Ihm); Paul. Aeg. 3.81.8 (CMG IX.1 314.13-15)). The ingredients do appear separately in eye remedies (e.g. blister-beetles in a remedy for staphylocoma, Gal. *Comp. Med. Loc.* 4.8 (xii 801.4 K.); pitch in a remedy for lachrymal fistula, ps.-Dsc. *Eup.* 1.51.3 (iii 170.10 W.)), but not together. Here, as in 1088, the recipe is no doubt for a preparation to be used against one or more skin conditions. For the combination of eye remedies and skin remedies, cf. 1088; also e.g. PSI Congr. XXI 3 (MP³ 2419.2).

The second recipe is for an eye remedy, ascribed to the doctor Amoitos, to be applied as a wash (3-4 n.). The same combination of seven ingredients is familiar from certain ἀχ]ρ]ικτα

such as those in Gal. *Comp. Med. Loc.* 4.7 (xii 749.13-750.11 K.). The quantities and proportions correspond closely to those of Galen's second recipe (xii 750.3-6 K.). Of the five quantities preserved in the papyrus, three (those for calamine, erice, and acacia) match Galen's, and the others are close: the papyrus has 2 drachmas of burnt copper and 5 of gum arabic where Galen's recipe has 4 of the former and 8 of the latter. The recipe in Galen, like the recipe in the papyrus, was to be used as a wash, according to Aëtius in his version, 7.104 (CMG VIII.2 365.7); Galen's version has simply ἡ χ]ρ]ησ]εσ δ]εδ]η]λωσται, referring to the instructions for the previous ἀχ]ρ]ικτων (xii 749.18-750.1 K.): ἡ χ]ρ]ησ]εσ διὰ γ]αλακτοσ γ]υμνακικοσ, ἡ κ]ρ]ασι μεσση. See in general on ἀχ]ρ]ικτα L. C. Youtie, *ZPE* 23 (1976) 121-9; I. Andorlini, *BASP* 18 (1981) 6-15; GMP I 13 introd. (pp. 140-45). The original sense of the word is discussed by K.-D. Fischer, in L. Cilliers (ed.), *Ashlepias* (2008) 80-82, and in R. E. Glaze, B. K. Nance (edd.), *Between Text and Patient* (2011) 184-7.

καθαρ]ιδων θ]ο]ρακι . []
π]ισσαν υ]γ]ρ]αν. []
Ἀμοιτα]σ λατρο]υ λου]τ]ρον
φαρμ]ακ]ω καθ]ημελιασ πε]πλιμ]ενησ
5 (δ]ρ.) ις, χαλκο]σ κε(καυμ]ένου) (δ]ρ.) β, σ]πι]ο]ν (δ]ρ.) . . . ε]ρε]ικησ
καρπο]σ (δ]ρ.) β, ε]μ]μ]υρ]ησ [(δ]ρ.) . . . ἀκα]κι-
ασ (δ]ρ.) σ, κ]ι]σ]μ]εωσ (δ]ρ.) ε []
ε. ιο] []

3 ι]ατρο]υ 5, 6, 7 < = δρα]χμ]αι 5 κ- 7 ι. κ]ο]μ]εωσ

'... with the thorax of blister-beetles, ... raw pitch.

'Amoitos the doctor's wash ... medicine: washed calamine 16 dr., burnt copper 2 dr., opium ... dr., erice seed-pod 2 dr., myrrh ... dr., acacia 6 dr., gum arabic 5 dr. ...'

1-2 The absence of quantities and the use of the accusative and dative rather than the genitive suggest that these lines belong to directions for the preparation of the medicine. For the nature of the recipe, see introd.

1 καθ]αρ]ιδων θ]ο]ρακι. Blister-beetles are a source of the blistering agent cantharidin and so commonly prescribed for skin diseases: cf. e.g. Plin. *NH* 29.93-6. The term is 'mainly used to refer to certain beetles of the family Meloidae' (L. C. Beavis, *Insects and Other Invertebrates in Classical Antiquity* (1988) 168). See in general Beavis 168-73; also M. Davies, J. Kathirithamby, *Greek Insects* (1986) 92-3. For the use of the thorax in particular, cf. Paul. Aeg. 7.17.58 (CMG IX.2 362.11) καθ]αρ]ιδων θ]ο]ρακων (v.l. θ]ο]ρακωσ), in a recipe for a plaster; and in general for opinions as to whether the whole insect or only part should be used, Beavis 172. Blister-beetles appear in papyri in recipes for skin conditions: 1088 14-18; SB XXVIII 1734 (PSI X 1180, MP³ 2421) fr. A II 27-31 (together with resin), III 1-7.

[ε] low trace. Perhaps [(μ]βαλ(λ)ε, or [(τ]ρα ε]π]βαλ(λ)ε: cf. e.g. Gal. *Comp. Med. Gen.* 2.17 (xiii 538.11-12 K.), LXIV 4777 7 (MP³ 2410.11). Otherwise e.g. ε]μ]μ]υρ]ησ, ε]π]τρα ε]π]χει, ε]μ]μ]υρ]ησ.

2 π]ισσαν υ]γ]ρ]αν. Raw pitch has many medical uses: cf. e.g. *Dsc.* 1.72.1-2 (i 70.15-71.7 W); Gal. *SMT* 8.16.19 (xii 101.9-102.6 K.). It is mentioned at 1088 17, SB 1734 fr. A II 37, GMP II II.2 (MP³ 2394.04). Cf. R.

Halleux, *Les Alchimistes grecs* i (1981) 225; V. Gazza, *Asgyptus* 36 (1956) 92. 3.

3-7 An eye remedy. See introd. for discussion.

3 *Μουινεῖα*. Probably an Oxyrhynchite. The name is found almost exclusively at Oxyrhynchus (I 47 13, etc.) or in the Oxyrhynchite (LVIII 3929 22). There is one third-century example from Hermopolis (?), P. Stras. IV 235 v. 1.

3-4 *Δουτ[ρόν]* | *φάρμακον*. For the supplied title, cf. the (different) recipe entitled *Ἐρμῶν ἀφθαλιμασὶν τὸ δουτῆρον* (Gal. *Comp. Med. Lec.* 4.7 (iii 754.1 K.)). After it, *δοῦτ[ρο]* | *φάρμακον* may be considered, as an explanation of the curious name. Cf. for the verb *Αἴτ.* 7.104 (CMG VIII.2 365.7) *δοῦε*, used in conjunction with a similar recipe (see introd.). | *φάρμακον* would be pointless without further specification (e.g. 'against' certain conditions). WBH suggests that *δοῦτ[ρο] ἐστὶ τῶν* | *φάρμακον* may not be ruled out, though it would leave the recipe without a proper title.

4 *καυθεῖα* πη[λ]μύρον: cf. 5243 ii 22 n.

5 *χαλοσο* κ(αυκαίνου): cf. 5243 i 4 n.

δοῦτο: cf. 5243 ii 2 n.

5-6 *ἐρείσκη*[] *καρποῦ*. *καρποῦ* is usually found in collyria with *ἐρείσκη*. Cf. 5243 iii 18-19 n.

6 *εμύρη*: cf. 5243 ii 6 n.

6-7 *δρακ[η]* is probable and gives a familiar composition. For *acaia*, cf. 5243 ii 17 n.

7 *α[δ]μωε*: cf. 5243 i 8 n.

(*δρ.*) *ε*. The quantity does not seem to be paralleled in recipes of this kind: cf. introd.

7-8 After the quantity of gum arabic, we expect only a reference to the excipient, and perhaps a brief instruction to 'use' the preparation. The excipient in the case of the parallel recipe found in Galen and Aëtius (see introd.) is water. So e.g. *ὄδωρ ἀμβρο(ε)ιον* may have stood here.

M. HIRT

5250. RECIPE FOR A REMEDY FOR SPREADING ULCERS

38 3B.89/E(2)b

5.1 x 4 cm

Third century
Plate II

On the back of 5249, left-hand parts of the first seven lines of a recipe. Upper and left-hand margins, each of about 0.9 cm, are preserved. The line length cannot be determined. The slanting cursive hand is like the second hand of XIV 1697, of 242.

παρά [Ἡρ]ακλείδου φ[
πρ(ό)νομάς· ἔστι δὲ δρεμ[
κλύζε ἐπὰν νομῆ] [
καὶ μὴ δόννηται ἀπ[δλ-
γον μετ' οἴνου φ. [
χρ(ᾶ) δὲ καὶ πρ(ό)κα γαγγράιν[α
φα. [. . .]]

2. 6 ¶ 2 l. 8 μμ- 6 ¶

5250. RECIPE FOR A REMEDY FOR SPREADING ULCERS

149

'From Heracles . . . against spreading ulcers. It is pungent . . . drench when a spreading ulcer . . . and cannot . . . a little with wine . . . Use also against cases of gangrene . . .'

1 παρά [Ἡρ]ακλείδου φ. Ε.γ. *φάρμακον ἐπιτετραμένον*, very common in Galen: cf. C. Fabricius, *Galenus Escorpiæ anti ālietern Pharmakologien* (1972) 169-74. Less probably *φάρμακον αὐλάου*: cf. XXXI 2567 6-7 (533), the only example of the word in the papyri. Heracles is a common name, and it is not possible to identify the holder in this case. There does not seem to be any reason to think of Heracles of Tarentum in particular. For the naming of the person from whom the recipe was obtained, cf. 5244 introd.

2-6 *πρ(ό)νομάς . . . χρ(ᾶ) δὲ καὶ πρ(ό)κα γαγγράιν[α*. Cf. e.g. P. Mich. XVII 758 A n. 7-8 *ἤμιστον ὄνον πρὸς νομιάς ἐρηθ[η]σας* κτλ. with 7 n. on plasters suitable for a range of ulcerous conditions. The recipe here bears some resemblance to those of Apollonius Mys ap. Gal. *Comp. Med. Lec.* 6.9 (iii 997.13-998.2 K.), corrected from Laurent, p. 75.17 f. 1112 = *Απόλλων* non Staden (p. 533) *λεγόμενον δὲ πᾶσι τὸ μετὰ ταῦτα φάρμακον, ὡς εἶναι καὶ νομιάδων ἀπὸ φάρμακον, 2 συνήθως μύρησιν καρπῶν ἡμῶν μετ' ἔλαιου. λεγόμενον δὲ καὶ τὰ αὐτὰ φάρμακον ἀπὸ γαγγράμμενον, ἢ' ὅ φησι ἐπεὶ τὸ πρῶτον, ἐν ἔξει καρμῶν ἰδίων διακλύσεισθαι. τὸ δὲ μετὰ ταῦτα γαγγράμμενον, ἢ' ὅ φησι ἐπεὶ ἐκλείων διαμετὰ παραλήρησιν χρόν, μετὰ δὲ ταῦτα ἔλαιον διακλύσει, καὶ αὐτὰ ἄρμυ καὶ δακνωδὲς ἐστι καὶ διασφραγιστέον, ὡς ἐνοσητέον. Paul. Aeg. 4.44 (CMG IX.1 362.26-364.32), *περὶ νομῶν καὶ σφραγιζόμενων καὶ φαρμακῶν, βεβητα κατασπλημῶν μὲν χροστέον ἐπὶ τῶν νοσητέων τε καὶ σφραγιζόμενων ἐλαίων δι' ἔλαιου τε καὶ ἔλαιου κρέματον ἢ οἴνου ἐπὶ ὄφθαλμοις κτλ.* For treatments for spreading ulcers, cf. also Archib. ap. Gal. *Comp. Med. Gen.* 4.10 (xiii 731.14-733.8 K.), *Αἴτ.* 14.49-50 (coll. 875-9; Cornarius (1549)).*

2 *δρεμ[η]* (l. 8 μμ-) *δρεμ[η] δρεμ[η]σάντων*.

3 *κλύζε* or a compound.

3-4 *ἐπὶν νομῆ* [. . .] *καὶ μὴ δόννηται ἀπ[η]*. Perhaps e.g. *ἐπὶν νομῆ* [. . .] *γόννησιν (. . .)* | *καὶ μὴ δόννηται ἀπ[η]σπλημῶσιν* cf. Orh. *Coll. Med.* 9.38.3 (CMG VI.1.2 34.11) *τὰς νομιάς ἀποκαθάρσειν*.

4-5 *ἀλ[η]θην* a genitive will have preceded, perhaps with e.g. *ἐπειτα δ'* before it.

5 *φ*. [e.g. *φφ[η]σας* perhaps not excluded, but the damaged final trace does not particularly suggest *ε*.

6 Above the left-hand side of φ, a high trace of uncertain significance.

7 *φασ[ε]δᾶ]ινε* ('cankers') is an obvious guess but not easy to reconcile with the link *φασ[ε]μ[α]κ[η]* - may also be considered.

W. B. HENRY

5251. RECIPES

40 3B.89/H(1-3)b

5.6 x 4 cm

Third/fourth century
Plate XII

The lower outer corner of a parchment leaf, with the lower right-hand corner of a column of writing on the hair side. The flesh side is blank. Red ruled lines mark the edges of the column, giving a margin of 1 cm to the right and 1.2 cm at the foot.

The medium-sized hand is of the same basic type as that of XXXIV 2699 (*GMAW*² 49), assigned by Turner to the fourth century. There are occasional serifs and some contrast between thick and thin strokes. Letters may be very tightly spaced towards the right-hand margin, and a line of writing may extend very slightly past the border on the right.

5251 is the first published medical text on parchment known to be from Oxyrhynchus. The use of a red border is unusual, but cf. the papyrus codex LXI 4163 (template for the sun and procedure text), and in general the use of red ruling in tables (e.g. A. Jones, *Astronomical*

Papyrus from Oxyrhynchus (1999) passim). There are also such borders in school texts: cf. R. Criboire, *Writing, Teachers, and Students in Graeco-Roman Egypt* (1996) 78.

As a word is divided at the foot of the column, the text must originally have continued on the back, although no text is preserved at the foot of the page; perhaps 5251 is the last leaf of a codex. It may belong to a doctor's parchment notebook. Such notebooks were considered by Galen to be the most precious among his possessions that were destroyed in the fire of 192: cf. *Gal. Ind.* 31–7 (11.7–13.2 Boudon-Milloit-Jouanna); M. Nicholls, *G&R* 57 (2010) 378–86. Use as an amulet (cf. e.g. PSI VI 718 (MP³ 2420)) is not suggested: the text will have continued on the back, and there are no folds in evidence.

The text consists of medical recipes, including parts of two titles (3 and 5, where see n.), referring to related conditions, fistulous ulcers (3) and tumours (5 n.). Ingredients are mentioned in the genitive (4–6), together with quantities (6). The extent of the loss on the left cannot be determined.

] . . . f
] , πα
] κέλευθος
] μάντης
 5] μα κρέατος
] , ἄ κηροῦ Κρηγι-

'... (for) fistulous ulcers ... frankincense powder ... fat ... I ... Cretan wax ...'

2] . : the lower part of an oblique descending from left to right.

3] κέλευθος. This must belong to the title of the recipe. Cf. 5248 fr. 1 ii 8 n.

4] . : an oblique descending from left to right.

μάντης: cf. 5248 fr. 1 ii 3 n.

5] μα. At the beginning, the lower part of an upright, reaching below the line, e.g.]ρ or]ρ. WBH suggests e.g. ἄρθε πᾶσι φύμασι Cf. *Adv.* 15.19 (11.17 Z.) ἀντιστασίων (καὶ) διαφορητικῶν πρὸς πᾶσι φύμασι φάρμακα καὶ κέλευθος (9) are often mentioned together.

κρέατος. For the uses of fat, cf. e.g. *Disc.* 2.76.17–19 (I 117.11–15.12 W); V. Gazza, *Aspetti* 36 (1956) 109; I. Andolini (ed.), *Trattato di medicina su papiro* (1995) 114–15. An adjective will have followed at the start of the next line indicating the animal in question (e.g. βοσος, πῆγ, βοσῆ).

6] . : the lower part of an upright.

κηροῦ Κρηγι[κοῦ]. Cretan wax is mentioned by Cels. 5.18.31 (CML I 200.10) as an ingredient of an emollient plaster. Dioscorides considered Cretan wax one of the bests, together with that of Pontus; all waxes have warming, softening, and moderately filling properties (*Disc.* 2.83.1, 3 (I 167.10–12, 168.14–15 W)). Wax is often a basic ingredient of plasters and poultices. See e.g. P. Mich. XVII 75B B 9 (MP³ 2407.01) and *passim*; Gazza (5 n.) 107.

M. HIRT

5252. LIST OF INGREDIENTS

43 5B.71/B(9–17)a

12.1 × 25.2 cm

Fifth century
Plate XIII

A list of products with quantities given mostly in carats, written across the fibres on the back of part of a wine account (to be published in a forthcoming volume). The text fills the sheet, indicating that the papyrus was cut for this list. The list is arranged in one column, with the names of the products on the left and the quantities on the right; it continues down the right-hand margin in two columns, the first being of two lines and the second of one line. There is an ink stain at the start of 5 (due to a deletion), and heavy blots at the start of 15 and before the quantity in 5. For the hand, cf. e.g. BGU II 609 (PGB 42b) of 441/2.

Most of the substances listed are of plant origin. There are also a few substances of mineral origin and one animal product (23 ὄνυχιον). Apart from πάχημα (17) and two products whose names begin with ἀντι-, perhaps indicating a substitution (3, 25), all of those listed are known to be used in medicine. It is thus conceivable that the list belongs to a medical context. The substances listed would not be used together in any one medical recipe. Some are compatible with the preparation of collyria. In particular, ψιμίθιον (15), χαλκόος (21), and καδμεία (22) are known as basic components of such remedies: cf. e.g. L. C. Youie, in J. Bingen et al. (edd.), *Le Monde grec: Hommages à Claire Préaux* (1975) 555–63. Certain other ingredients, particularly Κελτικὴ νάρδος (7), λυθόγυρος (20), and κρόκος (cf. 25 ἀντικρόκου), are also attested in eye salves. The other ingredients are not normally used in ophthalmic remedies. The list may refer to drugs needed for general restocking, or may be a register of items already acquired.

Several of the substances are frequently attested in the preparation of aromatic products, while ἀρκενικόν (9), ἰάριον, Κυρικόν, ψιμίθιον, and καθάρια (13–16) are pigments; all except the last appear in lists of pigments on papyrus (cf. P. Mitthof, in P. Horak, pp. 289–304). Most of the products listed appear in Diocletian's Price Edict, as well as in declarations of prices on papyri, among the products sold by the *μυροπώλαι* (Lat. *myroperarii*); see M. H. Crawford, J. M. Reynolds, *ZPE* 34 (1979) 204. Such ingredients are: 1 μακρίχη (34.17–28 Ciacchero); 4 στακτή (34.41 G.); possibly 5 κασία (in the Aezani copy of the Edict: 34.5 C.–R.); 6 ἔλαιακία (34.6 G.); 8 ἀμομιάς (34.37 G.); 9 ἀρκενικόν (34.25 G.); possibly 11 φάλλων (34.2 G.); possibly 12 κέτρος (34.1 C.–R.); 14 Κυρικόν (= cādūēs, 34.79 G.); 15 ψιμίθιον (34.61 G.); 18 βδέλλιον (34.7 G.); 19 Κολοφωνία (34.103 G.); 24 ἔλαιακρίχη (34.80 G.). (There is also κρόκος (34.14–16 G.); cf. 25 ἀντικρόκου.)

The carat, equivalent to 1/24 of the *nomisma* (Lat. *solidus*), is used similarly in the list P. Prag. I 88 (vi); cf. also P. Strasb. K. 19 (vii/viii); ed. J.-L. Fournet, in A. Boud'hors, C. Louis (edd.), *Études coptes X* (2008) 157–66), which attests the use of the *tremitis* (1/6 of a *solidus*). As Fournet notes (158), there is evidence that the *solidus* was a unit of weight as well as a unit of currency. The *nomisma* may be so used in the list MPER NS XIII 15 (vii): the sums involved would be remarkably large if it were being used as a unit of currency. Admittedly, if the carat is a unit of weight in this papyrus, the quantities are extremely small (1 carat = 0.187 g if a pound is taken to be 323 g; cf. BKT X 25 introd., p. 219 n. 13). The carat does not appear as a

subdivision of the *solidus* before about 430; cf. R. S. Bagnall, *Currency and Inflation in Fourth Century Egypt* (1985) 10.

Related or similarly named ingredients are sometimes placed together, though not consistently. Substances of mineral origin, with the exception of *ἀρσενικός* (9), are found in two groups of four (13–16), all used as pigments, and three (20–22), all used in eye salves; cf. above. Between them are a pair of ingredients used in *μαλάγματα*, *βδέλλιον* and *Κολοφονία* (18–19), and a third, *πάπημα* (17), that is mentioned together with *βδέλλιον* in another papyrus list (28 n.). *ἀντικασάμων* follows *κάσμων* (2–3), *φύλλον* follows *καροφύλλον* (10–11), and *κακία* and *ξυλοκακία* (5–6) are paired, as in the list SB XX 14502.4–5 (V).

The text contains numerous misspellings, and the nominative is sometimes written in place of the genitive (6, 18, 21; cf. perhaps 8).

An otherwise unattested term, *ἀντικασάμου*, is found at line 3.

	μα]ετίκη	[]
	κακάμου	γῆ(μικμα) α	
	ἀντικασάμου	κερ(άτια) β	
	στακτής	κερ(άτια) β	ξ
5	κακία	κερ(άτια) γ	
	ξυλοκακία	κερ(άτια) β	
	Καρτικῆς	κερ(άτια) γ	
	ἀμομῆ	κερ(άτια) β	
	ἀρσενικού	κερ(άτια) η	
10	καροφύλλον	κερ(άτια) ιβ	
	φύλλον	κερ(άτια) δ	
	κίστου	κερ(άτια) γ	
	ἱαρίου	κερ(άτια) β	
	Συριοῦ	κερ(άτιου) α	
15	ψιμπίτιου	κερ(άτιου) α	
	σανθουράκι	κερ(άτιου) α	
	πάπηματος	κερ(άτιου) α	
	βδέλλιον	κερ(άτιου) α	
	Κολοφονίας	κερ(άτια) β	
20	χ(ι)θαγγύρου	κερ(άτια) β	
	χλωκός	κερ(άτια) β	
	κακία	[]

Right margin, downwards:

Col. i	ὄνηχου	κερ(άτια) γ
	ξυλομακρίνης	κερ(άτια) γ

Col. ii	25	ἀντικρόκου	κερ(άτια) α
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1 l. μακρίνης	2 ῥ	3 κρη and so elsewhere	6 l. ξυλοκακίας	7 l. Καλκήρης
8 l. ἀμομῆος	9 l. ἀρσενικού	12 l. κίστου	13 ἱαρίου	14 l. Συριοῦ
16 l. σανθουράκι	18 l. βδέλλιον	19 l. Κολοφονίας	21 l. χλωκός	22 l. κακίας
24 l. ξυλομακρίνης				

¹Mastic, 1/4 (?) ... Cassatum, 1 *nomisma*. Anticassatum, 12 carats. Oil of myrrh, 2 1/2 carats. Cassia, 3 carats. Xylocassia, 2 carats. Celtic spikenard, 3 carats. Amomis, 2 carats. Opiment, 8 carats. Clove, 12 carats. Phyllon (?), 4 carats. Costus, 3 carats. Verdigris, 2 carats. Red lead, 1 carat. Lead carbonate, 1 carat. Resalgar, 1 carat. Pounded spice (?), 1 carat. Bdellium, 1 carat. Colophonian resin, 2 carats. Litharge, 2 carats. Copper, 3 carats. Calamine, 2 ... Onyx, 3 carats. Wood of mastic (?), 3 carats. Instead of saffron (?), 1 1/2 carats.

¹μακρίνης, l. μακρίνης: mastic, mentioned in several recipes and lists on papyri. Cf. M.-H. Marganne, *Inventaire analytique des papyrus grecs de médecine* (1982) 364; SB XVI 13002.1 (iii); MPEP NS XIII 10.7, 12 (iv), 15.2 (vii); P. Coll. Youtie II 86.5 (iii/v); PSI XV 1518.9 (iii); SB XX 14502.13 (v); SB I 5307.3 (BL VIII 321); P. Naqlun I 9.3 (vi). It is found in fourth-century declarations of prices: cf. LIV 3731 15 (310/11), 3733 14 (312), 3765 34 (327), 3766 90 (329). Dac. 1.70.3 (1 67.8–18 W) identifies the μακρίνη as the resin of a tree, the *xyinos* (*Pistacia lentiscus* L.), particularly used as a remedy for coughs and stomach unease; cf. S. Amigues (ed.), *Plantes médicinales de l'égypte ancienne* (2000) 68. Cf. also J.-L. Fourme, in A. Boud'hors, C. Louis (ed.), *Études égyptes X* (2008) 159; PSI 1518.9 n. The spelling μακρίνης is frequently attested in papyri; on the interchange χ > κ, cf. Cignac, *Grammaire* 1.90–92.

²the descending oblique stroke visible under the break seems compatible with the lower part of the symbol for one half found at 4 and 25.

³κακάμου. This product occurs in P. Haun. II 20.6 (iv/v), a private letter concerning drugs, in the lists SB 14502.6 and P. Prag. I 88.14 (vi), and in declarations of prices (3731 19, 3733 18, 3765 37, 3766 94). Paul. Aep. 7.3 (CMG IX.2 232.1–2) identifies κάσμων as the fruit of the *Bálacamon* (Mecca balsam; *Commiphora arababatum* Engl.); see J. André, *Les Noms de plantes dans la Rome antique* (1985) 53. Dac. 1.59.3 (1 56.1–6 W) notes the utility of the fruit in several treatments, although it is the juice of the plant (*σποδίαβάμων*) that has the greatest strength. Its properties are mainly cleansing and heating. In medical treatises, the fruit of the *Bálacamon* is frequently combined with other substances listed in this papyrus, especially with *κακία* (5), *σέστρο* (12), *νέρκος* (cf. 7 *Καρτικῆς*), and *ἀμομῆ* (cf. 8 *ἀμομῆ*), for instance in *ἀμφρόκων* (marjoram oil, Dac. 1.58 (1 53.10–54.14 W)) and in some medicines for the liver (Gal. *Comp. Med. Loc.* 8.7 (iii) 204.5, 18 K.).

⁴ψιμπίτιου a. A *nomisma* is equivalent to twenty-four carats. The quantity specified for *ἀντικασάμων* in the next line is thus half that specified for κάσμων itself.

⁵ἀντικασάμου. The term is not attested elsewhere, but P. Prag. 88.8 has *ερεος* (l. *ερεως*) κη ἀντικασάμου. In the light of Dac. 5.75.13–16 (iii 443–45.2 W), which attests the term *ἀντικασάου*, use of substances employed when *σπόδος* is not available, the item is plausibly taken as a substitute for κάσμων. I. Andolini, in BKT X 25 introd. (p. 127 n. 7), interprets P. Prag. 88.8 as *ερεως* κη ἀντικασάμου ('this, also as a substitute for costus'), on the analogy of the entries in pseudo-Galen, *De succedaneis*. In this papyrus, however, *ἀντικασάμου* should be considered as a single word, as the name of the substance needed instead of κάσμων would otherwise be

missing. Cf. also 25 *ἀντιερκόου*.

4 *ενακτική*: oil of myrrh, sometimes found in lists of ingredients, e.g. P. Prag. 88.4 and MPER NS XIII 15.70. For an example in a medical recipe, cf. 5243 ii 16 with n. It may be substituted for the juice of the *βλέκισμα* according to ps.-Gal. Sic. (ix 746.6 K.).
5 *κασσία*. *Cassia (Cinnamomum cassia Blume)* is sometimes attested in recipes and lists on papyrus, for instance in BGU III 953.4 (III/IV), P. Prag. 88.17, and SB 1402.4, and found in several declarations of prices: cf. 3731 II, 3733 17, 3765 37, 3766 93. It is also mentioned in the register PSI XII 1264.6 (IV); cf. also PS XXVI 16444.4 (V). Dsc. 1.13 (i 17–7–38.14 W) states that it has the same properties as *κιννάμωμον*, but is less strong; its *δύναμις* is said to be *θερμαντική, ωρρητική, ερμητική, and σφύρασις πρῶτος*. See further Amigues (1 n.) 90–92. Gal. *SMT* 7.10.11 (xii 13.5–13 K.) describes cassia as primarily emmenagogue and purgative. There is an ink stain before the n. WBH suggests that it was written and then washed off: cf. perhaps SB 1402.17.

6 *ἐλοκακία*, l. *-iac*. This item is found in the letter P. Havn. 20.10 and the list SB 1492.5 (immediately after *κακία*, see here). According to ps.-Gal. Sic. (ix 738.2 K.), *κιννάμωμον* may be substituted for it. On the analogy of Dsc. 1.14.4 (i 19.22–20.5 W), which attests a plant called *ἐλοκακίωμον* as a different type of *κιννάμωμον*, it is possible that *ἐλοκακία* is a variant of *κακία*. But André, *Les Noms de plantes 278*, takes *ελοκακία* as the branches (or merely the bark) of the cassia. Cf. 24 n.

7 *Καρμινία*, l. *Κελκινία*. On the interchange between *λ* and *π* in the Byzantine period, and between *α* and *ε* before liquids, see Gignac, *Grammar* 1 102–7 and 378–86 respectively. For Celtic *κινναρέν*, cf. 5243 ii 13 n. It is present in the list P. Prag. 88.3.

8 *ἀμομύλη*, l. *ἀμομύλο*. According to Dsc. 1.15.2 (ii 21.16–20 W), *ἀμομύλη* is a plant used for adulterating *ἄμωμον* (Nepal cardamom, *Amomum subulatum* Roxb.; cf. Amigues (1 n.) 109–10); cf. Pline. *NH* 12.49. *ἄμωμον* is sometimes present in papyri among aromatic substances, for instance in P. Coll. Youtie II 86.3; BKT IX 76.7–2.7 (VII); X 35 1.4 (VI/VII). It is also found in declarations of prices such as 3731 16, 3733 15, 3765 35, 3766 93. Diocletian's Price Edict, however, includes *ἀμομύλη* (34.37 C.). Dsc. 1.15.2 (ii 21.8–15 W) describes the *δέσμη* of *ἀμωμον* as *θερμαντική, ερμητική, ερμητική, ὀνόνησις, and ἀπόδιψος* if the plant is used as a compress on the forehead; it is employed in the treatment of various disorders, mostly inflammations. The case in which the entry is inflected is dubious; on the interchange between *λ* and *δ*, and that between *α* and *ε*, see Gignac, *Grammar* 1 75–6 and 277–7 respectively. (Perhaps *ἀμομύλη* represents an unattested diminutive *ἀμομύλοισ(ος)*: cf. *ἀνοίξ* for *ἐνόησις* in P. Got. 14.4 (VII), cited by Gignac, *Grammar* 1 76, and for *γ* written in place of *μ*, cf. P. Mich. XVII 758 A v.4 (IV) *σφῆξι(σ)*; Gignac, *Grammar* 1 237–9 (WBH).)

9 *ἀρκενικόυ*, l. *ἀρκενικόυ* (As₂S₃), a mineral ingredient attested in recipes and lists in papyri. Cf. LXIV 4979 5–6 n.; F. Mitthof in P. Horak, pp. 351–2; A. Collinet (ed.), *Les Alchimistes grecs xi* (2010) 139 (68 n. 24); W. C. Till, *Die Antikontakte der Kopten* (1953) 87. It is mostly found in remedies for ulcerations; Dsc. 5.104.4 (ii 74.11–13 W) states that it is an astringent, its *δύναμις* being *ερμητική and λευκαντική*.

10 *καρυοβάλλου*: clove, the dried blossom of *Eugenia caryophyllata* Thunb.; cf. V. Gazza, *Aspyria* 36 (1956) 83–4. It is occasionally attested in medical recipes on papyrus; see GMP 1 15.6 n. It is not found in Dioscorides, but mentioned in Pline. *NH* 12.30. Cf. also 5253.4; BKT X 25 → 3 n. for its use in aromatic products; Till (9 n.) 61; SB Kopt. 1 3.5.

11 *φάλλου*. The identification of this plant is uncertain; cf. Dsc. 3.215 (ii 35.8–136.5 W); BKT X 25 1 4 n. According to ps.-Gal. Sic. (ix 746.7 K.), either *νιφιδέντροχος* or *ερεκ γλαυκός* may be substituted for it.

12 *κέρου*, l. *κέρου*: *costus toos* (*Saunacus lappae* Clarke), frequently attested in papyri; cf. 5253 2; XI 138.4; BGU III 953.5; SB 1300.12. MPER NS XIII 10.13, 14.28 (VII); P. Coll. Youtie II 86.3; SB VII 9834b.32 (IV); P. Havn. 20.7. P. Havn. 1 98.4; CPR IX 83.8 (V); SB 1402.3. It appears in lists of prices in 3731 14, 3733 19, 3765 33, 3766 89, and in the register PSI XII 1264.0. There are further examples in magical papyri (PGM IV 2680, XIII 18, 535). The medical use of *κέρου* is discussed in Dsc. 1.16 (ii 21.21–22.14 W), where its *δύναμις* is said to be *θερμαντική, διουρητική, ἄμωμον ἀγωγός*, and useful in the treatment of wound disorders. Cf. M. H. Crawford, J. M. Reynolds, *ZPE* 34 (1979) 204, for references and for the use of *κέρου* as an aromatic substance; Andorlini (3 n.); Amigues (1 n.) 114–15; Till (9 n.) 69–70.

13 *ἰάρου*, *ἰάρου*, attested in papyri from the fifth century onwards, is a diminutive of *ἰός*, 'vegetrifer'; cf. Mitthof (9 n.) 292. 3. Dsc. 5.79.8–10 (iii 51.13–52.10 W) describes *ἰός* as having the same properties as *κακινάμωμον*: *χαλαρόν, useful in disinfectant and cicatrizing remedies*. It is frequently attested in medical papyri; see Marzari, *Intestattive anatolique* 361; MPER NS XIII 8.42 (V); P. Mich. 798 D 4, 5, 11, E 13, E v. 4; GMP II, ii 21, etc. (II). It is included in the lists P. Michael. 36 A.7, B.30, and MPER NS XIII 15.15 (*ἰώος*). Cf. also Till (9 n.) 61–2; SB Kopt. 1 6.1.

14 *Κρυμκό*, l. *Κρυμκό*: red lead. For the identification and spellings, cf. Mitthof (9 n.) 295–6. This ingredient also appears in P. NYU II 28.11, 23 (account of medical prescription, 165–200). Cf. Paul. Aeg. 7.3 (CMG IX.2 257.13–14) *εὐδωδὴ ἢ κρυσσοῦ κεντρομορῆς μὲν ἔχει καὶ ξηραντικὴν δύναμιν, οὐ μὲν θερμική*. Dsc. 5.88.6 (iii 62.16–17 W) mentions *εὐδωδὴ* as the name given by some to burnt *ψευδάσμι*; cf. Gal. *SMT* 7.9.33 (xii 244.4–7 K.). *Λιθάρργου* appears as a substitute for *κρυμκό* in ps.-Gal. Sic. (ix 744.8 K.). Cf. also Till (9 n.) 75–6; SB Kopt. 1 1.28.

15 *ψάμιον*, l. *ψάμιον*: lead carbonate, a mineral substance described in Dsc. 5.88.6 (iii 62.18–21 W) as having cooling, cicatrizing, and softening properties. It is frequently attested in medical papyri, primarily in recipes for collyria; cf. 5243 11 n. The papyrus also attests the substance in remedies for the treatment of wounds and ulcers; e.g. VIII 1088 4, 12 (II); GMP 1 12.8 (II); P. Mich. 798 A.10, B v. 10, 10–12. It is included in the list P. Michael. 36 A.14. For its use as a pigment, cf. Mitthof (9 n.) 296. Cf. also Till (9 n.) 51; Förster, *WB* v. 6.

16 *σαυδαρώδες*, l. *σαυδαρώδες*: *tealgar* (As₂S₃). *Lead arsenic* (9), this substance was austere properties and is principally employed in the treatment of ulcerations; cf. Dsc. 5.105 (iii 75.3–12 W); 4979 5–6 n. for attestations in medical papyri (adding the late Ptolemaic recipe P. Monac. Rora IV 65 v. 2); Till (9 n.) 88. It is also mentioned in P. Michael. 36 A.7. On the interchange between *α* and *ε*, cf. Gignac, *Grammar* 1 286–9.

17 *πατήματος*: taken to refer to 'pounded spice'. Cf. the list entry in PSI 158.20 *εὐρωμακὸν πατήματος*; LSJ Rev. Suppl. v. 1. It is found in lists of prices in 3733 (9) and 3766 (10). It is followed in the order for purchases VIII 1142 3–4 (III) by *βδελλίον*, also the next item in the present list, and *σνυξ*, for which cf. 23 *δουκίου*. It is not attested in pharmacological treatises or medical recipes on papyrus.

18 *βδελίον*, l. *βδελίον*: *βδελλίον*, also called *βδελία*, a gum obtained from an Arabian tree (*Cinnophora mukil* Engl.). Cf. André, *Les Noms de plantes* 34. It occurs in several declarations of prices, usually in the form *βδελίον*; cf. 3731 17, 3733 16, 3766 92, 1142 3–4 (cf. previous note) has it in the form *βδελλίον*. Cf. also perhaps SB XX 1422.8 (N. Kruit, K. Worp, *APP* 46 (2000) 10). Dsc. 1.67.2 (i 61.5–14 W) defines its *δύναμις* as *θερμαντική, μαλακτική, and διαλυτική*; it is useful in emollient and dissolving remedies. It is found in a recipe for a *μύκηλα* at P. Köln III 437.3–16 (I c), where cf. n., and in a recipe for a purge in Anon. Lond. fr. III.3 Manetti (p. 96); cf. l. Andorlini, *Galenos* 4 (2010) 39–45.

19 *Κολοφώνια*, l. *Κολοφώνια*: a pine resin imported from Colophon. Dsc. 1.71.3 (i 68.28–59.4 W) describes it as particularly useful in the treatment of chronic coughs. In medical papyri, it is found especially in recipes for *μύκηλα* on account of its astringent and softening properties; cf. PSI Congr. XVII 19.9 (V); P. Grenf. I 52 (II) with L. Andorlini, *RASP* 18 (1987) 20–21, esp. n. 61; and possibly P. Mich. 798 E v. 6. It is mentioned in other lists; cf. P. Prag. 88.13, P. Michael. 36 A.3, B.15. Cf. also Till (9 n.) 69; Förster, *WB* v. 6.

20 *Λιθάρργου*: litharge (lead monoxide), a mineral ingredient widely attested in medical papyri. Cf. 5247 1 13 n. It is included in the list P. Michael. 36 A.1.

21 *χαλαρόν*, l. *χαλαρόν*: Copper has astringent and cleansing properties. It is found in medical papyri in various recipes, but primarily as an ingredient of eye salves; cf. 5243 1 14, 11 n. It is also found in P. Mich. 798 D 11, E 7 in plasters for ulcerations, and among other ingredients in P. Prag. I 89.2 (VII). It appears in the list P. Michael. 36 A.10. Cf. also Till (9 n.) 69–4, 71–2; Förster, *WB* v. 6.

22 *καλιμαί*, l. *καλιμαί*: Calamine has astringent properties and is widely found in medical papyri as a component of collyria; cf. 5243 ii 12 n. It is also particularly restored in P. Mich. 798 B v. 8, in a plaster for ulcers and wounds, and is found in an *ἀνεκράου* in MPER NS XIII 12.19, spelt as here *καμ(ί)*: cf. K.-D. Fischer, *ZPE* 45 (1982) 122. The spelling *caimie* is familiar in Latin manuscripts; cf. *TLL* v. *caimie* (III 15.40–41). Cf.

for this ingredient also P. Prag. 89, 1; Till (9 n.) 39–60; Förster, *WPB* s.v.

[] β: the first letter could be υ, standing for *υμείματα* as at 2, but it would lack the superscript ο. (Perhaps *υμ[ρ]ίματα*), with a trace of the abbreviating stroke visible to the right of the *β*; υ alone would not fill the space' (WBH.)

23 *δύσμον*. As suggested in XXCI 2570 iii (B) 13 n., *δύσμον* is no doubt used as a diminutive of the *δύσφ* described in Dsc. 2.8 (I 124,3–13 W), the operculum (*ωμόν*) of a cockle, employed drunk or burnt for smoke in medical treatments. The smoke is aromatic. This substance also occurs in the lists SB 14502.12 (*δύσμον*) and P. Prag. 88, 7, in the order for purchases 1142 4 (*δύσμον*), and in declarations of prices (3733 28, 3766 10, LX 4081 1 (rv)).

24 *ζωλομαστίγγυς*, I. *ζωλομαστίγγυς*. This product is mentioned in declarations of prices (3733 29, 3766 11, 4081 3). On *ζωλο-*, cf. 6 n. André, *Les Noms de plantes* 278, takes the word to mean 'bois de Lentisque', and this interpretation may find a parallel in Dsc. 1.19,3 (I 25,9 W), which attests the name *ζωλοβάλακμον* for the wood of the *βάλανος*. Cf. 1 n. for *μαστί*.

25 *δινιρκόσμον*. LSJ Rev. Suppl. records *dinirkosmon* used of an unidentified aquatic plant in *Hippocrate Paris*, 712 (II 84,23 O.–H.). It may have the same reference here, or, like *δινιρκόσμον* (?), it may refer to a substitute for *κρόκος* (saffron; *Costus sativus* L.). Saffron is present in the list SB 14502.8 and SB 14502.8 and is frequently found in papyrus recipes: cf. GMP II 4 ii 11 n., 4979 4 n., 5253 5 n.

L. TAGLIAPIETRA

5253. LIST OF INGREDIENTS

62 6B, 76/B (1–3)a

7.3 × 7.5 cm

Sixth century
Plate VIII

Six lines and a trace of a seventh, written along the fibres; the back is blank. The upper margin is 1 cm deep and the left-hand margin 0.8 cm wide. The text continues almost to the right-hand edge of the sheet.

The hand is somewhat crude, but clearly influenced by the pointed majuscule. Individual letters are usually written separately and are generally upright. There is some decoration. In 1, some strokes are doubled, as though written with a defective pen; cf. also τ with a double upright in 2. Cf. *GBEPP* 31b (P. Vindob. G 25949), assigned to the middle of the sixth century.

The text has no heading. Each item is given in the genitive with a weight in grams, apart from the third item, for which the weight is given in carats. A gram is about 1.12 metric grams (cf. BKT X 25 introd., p. 219 with n. 13), and a carat about 0.187 metric grams (cf. 5252 introd.). Numerals are not overlined except in 3 and perhaps 1. Recipes lacking the usual heading are found occasionally; cf. LXXIV 4976 introd. However, I have found no recipes with precisely the ingredients included in 5253. The text may then be a list, possibly drawn up by a physician or pharmacist, with precise quantities of ingredients for different recipes, comparable to 5252 and e.g. P. Michael. 36, and perhaps also SB XX 14224 (vi), a list of three items with quantities in carats. For other cases in which it is difficult to establish whether a papyrus contains a recipe or a simple list, cf. e.g. SB XXVIII 17137, GMP II 11. All the items listed in 5253 are used in the production of perfumes; cf. e.g. the table in BKT X 25 introd., pp. 219–20.

Αἰτ. 16.144 (169.14–18 Z.), a recipe for a *θημιάμα*, includes five of the items listed in 5253: *κρόκος*, *καρποφύλλον*, *ναρθόσταχς*, *κρόκος*, and *μύσχος*; cf. for similar *θημιάματα* Αἰτ. 16.146, 148–9 (169.24–170.7, 171.1–10 Z.), *ναρθόσταχς*, *κρόκος*, and *καρποφύλλον* are used with other ingredients in the preparation of an aromatic wine (*κυδωνάτων*) in MPER NS XIII 14.28–30 (vii), while in MPER NS XIII 10.10–21 (vi), *κρόκος*, *ναρθόσταχς*, and *κρόκος* are included in a recipe for a preparation to be used against bowel problems.

νάρου στάχυ[ς] γρά(άμματα) 3
κόστου γρά(άμματα) η
καρβα κ(εράτια) η
καρποφύλλον γρά(άμματα) η
5 κρόκου γρά(άμματα) δ
μούσκου γρά(άμματα) η
|

1 L. *στάχυος* γρ. and so elsewhere Possibly η 3 ρ 4 L. *καρποφύλλον* 6 L. *μούσκου*
'Spikenard, 8 grams. Costus, 8 grams. Cardamom (?), 8 carats. Clove, 8 grams. Saffron, 4 grams. Musk, 8 grams. ...'

1 *νάρου στάχυ[ς]*, I. *στάχυος*. This item occurs as two words in MPER NS XIII 10.15 and the list of spices O. Bodl. II 2253.2 (iv). The term corresponds to the *spica nardi* of Plin. *NH* 12.42. *Nardostachys jatamansi* DC is an aromatic plant imported from India. It was largely used in the preparation of collyria; cf. Αἰτ. 7.117 (CMG VIII.2 392–7–399.4). Cf. e.g. SB XXVIII 17137 (iv); BKT IX 76 f. 2.2, 3 (vi); P. Scholl 153 (vi). See further Thlphr. *HP* 9.7.2 with Amigne's note (pp. 109–10); R. Mitchell, GMP II p. 133; BKT X 25 4 3 n. The *νάρου* perfume was produced from its root; cf. Thlphr. *Od* 28. Cf. also 5243 7 n.

2 *κόστος*. Cf. 5252 12 n.
3 *καρβα* WBH doubtfully suggests *καρβαμύρον* (I. *καρβαμύρον*), but notes that the two examples of this spelling given by Raeder in *Orth. Ec.* 45.17–18 (CMG VI.2.2 204,32–3, 39) are probably due to a typographical error: Bussemaker and Durenborg have the standard spelling in their edition (II 559 6–7, 12). For examples of θ in place of δ, a rare substitution, cf. Gignac, *Grammar* 1 97 (but O. Straz. I 290.2 is to be removed from the list; cf. SB XXIV 16030). The usual spelling is found in a recipe at P. Mich. XVII 758 L v. 4.

Cardamom (*Eleutheria cardamomum* White & Maton) is an aromatic plant with a wide range of medical uses; cf. e.g. Dsc. 1.6 (I 10.14–17.7 W). It appears in various medical recipes alongside other ingredients mentioned in this papyrus; cf. e.g. Paul. *Aeg.* 7.11.15 (CMG IX.2 300.20–21), a *πικρυσμα* (with *κρόκος* and *κρόκος*); *Acl.* *Promote* 10 (48.1 llm), an *ἀντιδωτος θυμακ* (with *κρόκος*, *κρόκος*, and *ναρθόσταχς*); *Archip.* p. 17.19 *Brescia*, a recipe for a fumigation to be used against intestinal worms (with *κρόκος* and *κρόκος*); *Polyarch.* ap. Paul. *Aeg.* 7.38.5 (CMG IX.2 370.1–6), a *μύσχα* (with *κρόκος*, *ναρθόσταχς*, and *κρόκος*); Paul. *Aeg.* 7.20.34 (CMG IX.2 390.12–13), a recipe for the oil *γύλων* (with *ναρθόσταχς*, *κρόκος*, and *καρποφύλλον*); Αἰτ. 16.132 (163.22–6 Z.), a recipe for an unguent called *φουλιδών* (with *ναρθόσταχς*, *κρόκος*, and *κρόκος*).

Pliny (*NH* 13.8, 12, 18, 15.30) offers detailed information on the use of cardamom in perfumes. In particular, it was used with many other ingredients, including *κρόκος* and *κρόκος*, in the preparation of the *regale unguentum* (*NH* 13.8). Cf. also Thlphr. *HP* 9.7.2–3 with Amigne's note (pp. 109–10), *Od.* 25 and 21 with B.

Herzhoﬀ ap. U. Eigler, G. Wöhrlé (edd.), *Theophrastus De odoribus* (1993) 84.

4 *καρροφύλλου*, *l. καρροφύλλου*. For *ε* in place of *υ*, cf. Gignac, *Grammar* 1 273–4. This spelling is also found in MPER NS XIII 14.29, BKT X 25 → 3, ↓ 2; cf. P. Horak 17 r. 5–6 (*καρροφύλλου*, *καρροφύλλου*). Cf. on this ingredient 5252 10 n.

5 *κρόνον*. Saﬀron, derived from the stigmas of *Crocus sativus* L., was widely used in medicine (cf. e.g. P. Mitthof, GMP II p. 132; GMP II 4 ii 11 n.) and as a perfume (cf. Herzhoﬀ (3 n.) 36–7; BKT X 25 ↓ 2 n.). Cf. LXXIV 4979 4 (1/1/1) with n. for other papyrological instances, to which add O. Stras. I 619.1 (1), O. Claud. II 220.5–6 (1), P. Haun. II 20.8 (1v/1v), P. Köln X 410.3 (1v/1v), P. Horak 14.7 (v), SB XX 14224.2 (v), P. Scholl 15.2, 5243 1 12 (?), ii 2–3 (?), 16, iii 16, 22, 5247 ii 5.

6 *μούσκου*, *l. μόσχου*. Musk is an aromatic substance extracted from the abdominal gland of the Siberian musk deer (*Moschus moschiferus* L.) and used in perfumes and unguents; see BKT X 25 ↓ 1 n., and cf. introd. The same spelling is found in BKT X 25 ↓ 1; cf. also SB I 5307.2 (BL VIII 321) *μούσχα(αίον)*; P. Strasb. K. 19.2 (1v/1v); VIII; J.-L. Fournier, in A. Boud’hors, C. Louis (edd.), *Études coptes X* (2008) 157–66 *μούσχαλαον*; MPER NS XIII 15.14 *μούσχα(αίον)*, 17.3–2.

7 ↓. Two traces on the edge, 5 mm apart, suggesting a square letter such as η, κ, or ν. The second trace is a leftward-pointing hook like that at the tip of the upper arm of κ in 2.

D. COLOMO

III. DOCTORS' REPORTS

Doctors' reports represent one link in a chain of events triggered usually by violence and sometimes by sickness. Following an assault or violent death, a petition was sent by the victim or the victim's representatives to the strategus or, from the time of the Tetrarchs onwards, to the *curator civitatis* or another authority. When prompted by sickness, the petition involves civil servants and may be motivated by the need to justify absence from work (VI 896 ii (316); P. Rein. II 92 (393), where disease had resulted in death). The petition briefly relates the circumstances of the case and requests that the victim be examined officially and a report be written. The strategus then orders one of his assistants to visit the victim, together with a doctor, and to assess the victim's condition. The primary purpose of the examination is not to provide medical care. This is shown by documents indicating that the presence of a doctor is not always required (see LVIII 3926 (246), a petition requesting that an assistant inspect the victims of an assault; P. Merr. II 89 (300), a report submitted by an assistant who had carried out the examination), and by the fact that treatment is almost never mentioned, the only known exceptions being P. Oslo III 95 (96) and BGU II 647 (130). Following the examination, the doctor and the assistant submit a joint report to the strategus, in which they describe, sometimes very succinctly, the injuries endured by the victim, and the state of the corpse (in case of death) or the symptoms presented by the sick person. The last episode in this chain of events in case of assault is the trial of the perpetrator(s), where the report is produced as evidence. Instead of the assistant and a doctor, the 'experts' could consist of two or more doctors (5254), a doctor and two village elders (BGU 647) or, at the request of the petitioner, of a midwife, when the victim is a woman (LI 3620 (326)). In case of violent death, even mummifiers (III 476 (c. 159–61)) could be mandated as 'experts'. Details of published medical reports and bibliography (up to 2011) are given at <http://web.philo.ulg.ac.be/cedopal/medecine-dans-legypte-greco-romaine/>. (The article of D. Hennig, 'Amtlich angeordnete ärztliche Untersuchungen im römischen Ägypten', *Chiron* 44 (2014) 1–21, appeared when this volume was in proof.)

M. HIRT

5254. REPORT OF TWO DOCTORS

28 4B.62/F(2–4)b

6.1 × 9.4 cm

c. 89–94
Plate XIV

The upper part of a report submitted by two doctors to the strategus in response to his instructions to examine a person. The examination is carried out by two doctors instead of the usual team of a *hyperetes* and a doctor (cf. e.g. 5255); colleges of doctors are not otherwise attested in such reports before the fourth century.

This is the earliest medical report so far published, the date being given by the known

limits of the term of the strategus Ti. Cl. Arius. Three other published reports were filed in Oxyrhynchus shortly afterwards: PSI inv. 3242 (ed. A. M. Bartoletti Colombo, *Dai Papi della Società Italiana (Estratto dai P.S.I.)* (1971) 6–7), of 1 June 94 or 95 (see below, 1 n.); P. Oslo III 95, dated 17–25 April 96; and PSI inv. 3241 (ed. Bartoletti Colombo, loc. cit. 4–5), of 13 June 96. The last two were submitted by Theon son of Harpaeis, one of the two doctors named in 5254.

The writing runs along the fibres and the back is blank.

Τιβέριω Κλαυδίω
 Ἀρίω στρατηγῷ
 παρὰ Καλαμίωνος
 τοῦ Διδύμου καὶ
 5 Θέωνος τοῦ Ἀρπάη-
 cis ἀμφοτέρων ἰ-
 ατρῶν ἀπ' Ὀξυρύγχου(ων).
 ἐπετράπημεν ὑπὸ
 σοῦ ἐπιθεωρῆσαι
 10 Νίλον ἑρμηνέα,
 ἐφιδόντες οὖν τ[οῦ-
 του] , [

2 l. Ἀρίω 5–6 l. Ἀρπαίσιος 7 οξυρυγῷ 10 l. Νέϊλον 11 l. ἐφιδόντες

¹To Tiberius Claudius Arius, strategus, from Calamion son of Didymus and Theon son of Harpaeis, both doctors from (the city) of the Oxyrhynchus. We were instructed by you to examine Nilus, an interpreter. Having thus inspected (him) ...

^{1–2}Ti. Claudius Arius is recorded as strategus of the Oxyrhynchite nome between 31 October 89 and 93/4 (month unknown). He was probably succeeded by Iulius Aesclepius, the addressee of PSI inv. 3242 (see introd.), dated on the 7th of Soterios in an unknown year. The reference to Soterios, an honorific month attested first on 3 June 88 and not later than the end of Domitian's reign (see D. Hagedorn, *ZPE* 159 (2007) 263 n. 14, 264), suggests that the likeliest date for the text is 1 June 94 or 95 (a date in 88 or 89 would make the fasti of Oxyrhynchite strategi in the late 80s implausibly crowded). Pelais, a new strategus, is attested in office on 17–25 April 96. Arius probably served as the strategus of the Heraclides division of the Arsinoite nome from 98 to 101. See J. Whiteborne, *Stratagi and Royal Scribes of Roman Egypt*² (2006) 13 (Ars.), 93 (Oxy).

³Καλαμίσιος. The name is otherwise attested only in *S. Aeschin.* 2.67n (4,205 Ditt.) = *Καλαμίσιος ἑρμηνεύς*, whose *hermeneus* it has been amended to *Καλαμύσιος* (see our reference to WBH).

^{4–6}Θέωνος τοῦ Ἀρπαίσιος (l. Ἀρπαίσιος). See introd., and B. W. Jones, J. E. G. Whiteborne, *Register of Oxyrhynchite, 30 B.C. – A.D. 96* (1983) 238, no. 4937, who suggest that his father's name was incorrectly given as Harpalus in PSI inv. 3242.2. P. Lips. 1 220 = M. Chr. 230, of probable Oxyrhynchite origin, records one Harpalus, son of Theon and grandson of Harpaeis, deceased by December 88 (cf. 11). The relevant entry in the

Register of Oxyrhynchite (no. 1897) does not associate him with Theon the doctor, but this is done in the entry for his putative grandfather Harpaeis (no. 1876). Harpalus had taken a loan of 1,000 drachmas (ξ[ιλίων] in M. Chr. 230.7 is probably right) in 76, which was still unpaid twelve years later and was claimed from his two sons and heirs. Theon made a loan of 356 drachmas in 98 (P. Genova II 62). These are large sums, indicative of a certain financial standing.

^{6–7}Ἀμφοτέρων ἰατρῶν ἀπ' Ὀξυρύγχου(ων). Cf. 5255 1 and n.

⁸ἐπιθεωρήσασθε. The same verb is used in the three other early medical reports: P. Oslo 95.9–10, PSI inv. 3245.5, PSI inv. 3242.5; cf. also 5255 4–5, III 476 10 (c. 139–61), I 51 5–6 (773), XLV 3245 7 (297).

¹⁰ἐρμηνέα. See most recently R. Mairs, 'Interpreters and Translators in Hellenistic and Roman Egypt', *Pap. Congr. XXVI* (2012) 457–62.

N. GONIS / M. HIRT

5255. DOCTOR'S REPORT

19 2B.87/G(6)

8.8 × 11.8 cm

c. 118–21 or c. 166–8
 Plate XIV

The upper part of a report about an injured man, submitted to Demetrius, strategus, by the doctor Leonides son of Alexander, who had conducted the examination with an assistant called Dionysius.

The identity of the strategus and in consequence the date of this text pose a serious problem. Demetrius was the Oxyrhynchite strategus in 118–21, but the hand that wrote the report seems to be the same as that responsible for PSI V 455 of 178; note in particular the idiosyncratic shape of ρ in both texts. Claudius Demetrius alias Hermais was strategus in Oxyrhynchus in the late 160s, which would suit the palaeographical impression, but it would be odd if his alias were not used in the address.

The edge of a sheet-join is visible 3.3 cm from the left-hand edge. The writing runs along the fibres and the back is blank.

Δημη[τρι]ῶι στρ(ατηγῷ)
 παρὰ Λεω[ν]ίδου Ἀλεξάνδρο(υ)
 ἱατροῦ ἀπ' Ὀξυρύγχου πάλ(εως).
 τῇ ἐνεστῶσῃ ἡμέρᾳ ἐπε-
 5 τράπημεν ὑπὸ σοῦ διὰ Διο-
 νυσίου ὑπηρέτου ἐφιδεῖν
 τὴν περὶ [] χημιου προ-
 τάτην ζ... ἰδος ἀτῆς
 θυγατρὸς Κλαυδίου Διοσι-
 10 κίου Πέτρ'... ὄνος διάθεσιν.
 ἐφιδὸν αὖν τοῦτον τῇ

αὐτῇ ἡμέρᾳ διὰ τοῦ αὐτοῦ
 ὑπηρέτου ἔγγων αὐτῶν
 ἔχοντα ἐπὶ τῆς ὄψεως|
 15 c. 6 κ[α] ἐπὶ τοῦ . . .|

1 ετρ² 2 ἀλεξανδρ³ 3 π⁴ 5 διο— 6 I. ἀνεδ⁶ 11 I. ἀνεδ⁶

¹To Demetrius, strategus, from Leonides son of Alexander, doctor, of the city of the Oxyrhynchis. I was instructed by you on the present day through Dionysius, your assistant, to inspect the condition of —emias, overseer of —la, Greek citizen, daughter of Claudius Dionysius son of Petron. Thus I inspected him on the same day in the presence of the same assistant, and determined that he had ... on the face and ... on the ...

¹ Demetrius is attested as strategus of the Oxyrhynchite nome from 17 July 118 to 26 January 122; he was out of office by 14 February 122. Claudius Demetrius alias Herminus was in office some time in 166/7 and in 167/8. See Whitehorne, *Scribes and Royal Scribes of Roman Egypt?* 95 and 98.

³ λαροῦ ἀε' Οἰφύβητον πάλαιος. If 5255 dates from the late 160s, this would be the latest reference to a doctor in such reports who is not called ἰατρός; cf. 5254 6–7, but contrast 5257. The earliest occurrence of this term is in I 51 4 of 173. See M. Hirt Raj, *Médecins et malades de l'Égypte romaine* (2006) 102–22; El-Sayed Gad, *Pap. Congr. XXVI* (2012) 265–74.

^{5–6} διὰ Διονυσίου ὑπηρέτου. There was a Dionysius, assistant of the strategus, in 159/60 (VII 1032 25–6), and apparently no longer in this function in 162. On the role of *hyperetai* in medical examinations, see Hirt Raj, *Médecins et malades de l'Égypte romaine* (1997) 46–7.

⁷ [] γήμων Πήγγημι? Πήγγημι may not be excluded.

^{7–8} προσεστέρη. This term probably refers to an overseer of the estate of the daughter of Claudius Dionysius, like those in the estate of the Tiberti Iulii Theones (mostly in P. Theon.; also I. 3588 4). The term seems to have a different sense in the Heronion archive; see D. Rathbone, *Economic Rationalism and Rural Society in Third-Century A.D. Egypt* (1991) 188–93.

⁸ Σ . . . ὄσο. Σαρραβιδος would suit the traces best, but the female name *Σαραβίς is unattested, and not likely to have existed in view of the common Σαραβίδος. (Ἡεργιδος is not a possible reading.)

^{9–10} Κλαυδίου Διονυσίου Πέτρ' ἠνοσ. The purpose of the correction is unclear. There is only one Claudius Dionysius attested in second-century Oxyrhynchus, the signatory of a report of sale in 143 (III 520 25).

While Claudius Dionysius appears to be a Roman citizen, his daughter was an ἀετή, a Greek citizen, probably from Alexandria, less likely from Naucratis or Prolematis. This implies either that she was born before her father obtained Roman citizenship, or that, while her father was a long-standing Roman citizen, her mother was a Greek citizen, and she had her mother's status (*Gnomon* 39).

^{11–12} τῇ αὐτῇ ἡμέρᾳ. Cf. τῇ ἐνεστένῃ ἡμέρᾳ in 4. The forensic examination was usually carried out on the day on which the strategus' order was issued, as was the writing of the report; see e.g. LIV 3729 (307) or VI 896 II (316). Likewise, very little time elapsed between the receipt of a petition and the strategus' order to conduct an examination; see e.g. III 475 (182) or LVIII 3926 (246), in which the strategus initiates the procedure on the day on which the petition was submitted. This efficiency may be due to the fact that injuries had to be recorded before they were treated or healed, so that the report could be used in court. Some apparent exceptions do not disprove the rule. In P. Mert. II 89 (390), it took two days from the date of the filing of the petition for the report to be made, but the examination took place away from the strategus' seat (Karaniis vs. Arstinoe). The same geographical distance is in evidence in BGU II II 647 (710), and may account for the five-day interval between the assault and the examination. For a possible failure to petition the authorities at the time

of the injury, see I. 3555 (511).

¹⁴ ἐπὶ τῆς ὄψεως. The term is not mentioned in any other report (cf. M. Manfredi, 'Qualche osservazione sui referti medici nei papiri', in I. Andorlini (ed.), *Testi medici su papiri* (2004) 153–70 at 168–9), though facial injuries are attested, e.g., in P. Lips. I 42 (391).

¹⁵ . . . [perhaps ἀε[τε]ρροῦ.

N. GONIS / M. HIRT

5256. DOCTOR'S REPORT

9 I.B.170(G)e

7.6 × 7.2 cm

25 September 190

Plate XII

The lower part of a report submitted by one doctor (7) concerning two (or more) persons injured apparently as a result of an assault (6).

The writing runs along the fibres. The back is blank.

c. 25] . . .
 c. 20 ἐπὶ δὲ τῆς ἀριστε-
 ρᾶς χε[ρ]ός| [ο]ἴδημα μετὰ ἀποσπρίμα-
 τα καὶ ἐπὶ τοῦ δεξιῦ ἀντικνημίου
 καταξυμένη καὶ τὸν Ζωίλου ἔχον-
 τα ἐπὶ τοῦ νόστου τύπου πληγῶν,
 5 ἀπερ προσφωνῶ. (ἔτους) λα Αὐτοκράτορος
 Καίσαρος Μάρκου Αὐρηλίου Κομμόδου
 Ἰαντανίου Εὐσεβίου Εὐτυχίου
 10 Σεβαστοῦ Ἀρμενακοῦ Μηθηκοῦ
 Παρθικοῦ Σαρματικοῦ Γερμανικοῦ
 μεγίστου Βρετανικοῦ, Θωθ κη.

3–4 I. ἀποσπρίματων 7 C

... and on the left hand a swelling with abrasions, and on the right shin a scratch, and that Zoilus had marks from blows on his back, which I report. Year 31 of Emperor Caesar Marcus Aurelius Commodus Antoninus Pius Felix Augustus Armeniacus Medicus Particus Sarmaticus Germanicus Maximus Britannicus, Theoth 18.

3–4 [ο]ἴδημα μετὰ ἀποσπρίματα (I. ἀπρω) (WBH). Cf. the expression οἴδημα μετὰ πελιδμάτος in BGU III 92.15 (307 or 311), LXIV 4441 I 10, 12 (316), P. Lips. I 42.16, 17 (391). The only other appearance of ἀποσπρίματα in papyri is in I 69 8, where it refers to the marks left by a rope on the ground; the text is a complaint about a robbery, and is dated 21 November 190, about two months later than 5256, but not in the same hand.

In medical authors, however, the word is fairly common.

5 καταζευμῶν. The only other occurrence of this word appears to be in Hesychius δ 2448 ἀροφή· ἀμυχή, καταζευμῶν, ἀμυχή, the other gloss, is used in some fourth-century medical reports; see LXVI 4528 13 n. 6 τύπουσιν πλῆρωσιν. Cf. PSI V 455.16-17 (Oxy.; 178)· πύματα πλῆρωσιν. The expression occurs also in literature: Ath. 13.158C τοῖς τύπουσιν τῶν πλῆρωσιν.

N. GONIS / M. HIRT

5257. REPORT OF A PUBLIC DOCTOR

64 6B.60/G(2-3)b

9.8 x 9 cm

312

Plate XIV

The upper right-hand corner of a report submitted by a public doctor to the *curator civitatis* of Oxyrhynchus concerning a man with a head injury.

The text runs along the fibres and the back is blank.

ἰπατείας τῶν δεσποτῶν ἡμῶν Φλαυ[ο] [O] [ἰ]αλερίου [Κωνσταντίνου καὶ Λικινιανῶν Λικινίου]ου Σεβαστῶν [τῶ β] [ἰ].
(καὶ)

Ὁθαλερίω Ἡρακλῆ καὶ Σεραπίωνι λογιστῇ Ὁξυρυχητῶν παρὰ Ἀθήρηλον . . . ος θημοσίον ἰατροῦ τῆς

λαμ[πράς] καὶ λαμ[προτάτης] Ὁξυρυχητῶν πύλωσιν. ἐπισταλείς ὑπὸ σοῦ [Γ]ων βι-
βλιδίων . . . 5 ἔπιδοθέν[τ]ων ὑπὸ Ἀθήρηλον Σεραπίωνος
12 -ο]ν τῆς αὐτῆς Ὁξυρυχητῶν πύλωσιν δι' αὐ
13] τῆν οὖσαν περὶ αὐτῶν διάθεσιν καὶ ἐν-
10 γράφωσιν προσφών[η]σαι, δηλῶ ἐπιτεθεωρηκέναι ἐπὶ
τῆς πόλωσιν τῶν προκειμένων Σεραπίωνα ἔχοντα
10 τῆς κεφαλῆς[ε . . . 8] [] κωφὸν καὶ
] []

1 -]ἰε[ο] 5 ὄση 6 ὄση 8-9 I. ἐγγράφωσιν

The consulship of our masters Flavius Valerius Constantinus and Licinianus Licinius Augusti for the 2nd time.

To Valerius Heron alias Sarapion, *curator civitatis* of the Oxyrhynchite (nome), from Aurelius . . . son of . . . public doctor of the splendid and most splendid city of the Oxyrhynchites. Having been sent by you a copy of the petition submitted by Aurelius Sarapion . . . of the same city of the Oxyrhynchites through which . . . his present condition and to report in writing, I declare that I have examined the aforementioned Sarapion in the city, who had . . . his head . . . deaf and . . .

1-2 On the second consulship of Constantine and Licinius, see CSBE² 177. The restoration of the iteration figure in line 2 ([τῶ β]) seems secure: the *gentilicia* of the consul-emperors have not occurred in any

papyrus dated by their third (313) or fourth (315) consulship. See also 3 n.

3 To judge by the spacing, the name of the *curator civitatis* should be restored as [Ὁθαλερίω Ἡρακλῆ τῶ καὶ Σεραπίων], attested in office from 307/8 to September 312, rather than as [Ὁθαλερίω Ἡρακλῆ τῶ καὶ Γερροῖω], who held the position from early in 313 until 318. See P. Oxy. LIV, pp. 222-3.

4 It would be tempting to restore παρὰ Ἀθήρηλον Διοσκόρου Ἡρακλῆ, the name of a public doctor who submitted a report to the *curator civitatis* in 316 (LXIV 4441 ii 4), but this would be somewhat short for the space.

θημοσίον ἰατροῦ. This is the latest report submitted by a single doctor; there are two doctors named in VI 896 ii (316).

5-6 ἐπισταλείς ὑπὸ σοῦ [Γ]ων β[ιβλιδίων] . . . 5 ἔπιδοθέν[τ]ων. We expect e.g. ἐκ βιβλιδίων ἐπιδοθέντων (ca.); perhaps τῶν σοὶ ἐπιδοθέν[τ]ων (WBH). The construction is somewhat comparable to P. Mich. XVIII 787.19-20 (182-3) ἐπισταλείς ὑπὸ Παύ[σά]μου στρατηγικῆς . . . ἐπι[στο]λῆς; cf. also LVIII 3926 35-6 (246) ἔκων βιβλιδίων κοινατοῦτος ἐπιεξετάλαται σοὶ (similarity P. RyI. II 117.2-3 (269)).

7 -ο]ν τῆς αὐτῆς Ὁξυρυχητῶν πύλωσιν. The lacuna must have contained the function or occupation of Aurelius Sarapion.

8 Ε.ε. [ἔ]ξωσιν με ἔφαθεν (I. ἐπιδοθέν). διδῶσιν is often the object of ἔφαθεν (e.g. XXXI 2563 24, XLIV 3195 ii 35, LIV 3729 15, LXIV 4441 i 3). For ἔξωσιν, cf. SB XX 14693.7-14 (c. 130-40) ἔξ ἐπιδοθέντων | βιβλίον στεφάνου Ἀρκαμῆτος . . . ἔξωσῶσιν τῆν περὶ | τὰ τραύματα αὐτοῦ διδῶσιν ἐπιθεωρηθῆναι | ὑπὸ θημοσίον ἰατροῦ καὶ ἐγγράφωσιν θηλάσιν.

9-10 ἐπὶ [τῆς πύλωσιν, as in LXIII 4370 12, LXVI 4529 10.

11 ἔχοντα [τῆς κεφαλῆς] . . .] κωφόν. ἔχοντα introduces the injuries suffered by Sarapion. At the start of 12, perhaps παρὰ τὸ μέσον τῆς κεφαλῆς (WBH); cf. 4441 ii 14-15 ἔχοντα ἐπαρὰ μὲσον τῆς κεφαλῆς διαίρεσιν ([. . .] cov ed. pe; new reading suggested independently by WBH and NG). In the gap after κεφαλῆς, τραύμα, 'wound', is likely; then before] κωφόν, WBH suggests καὶ, noting that διαίρεσιν καὶ, as in 4441, would probably be too long. Hearing loss has not occurred in other doctors' reports (an ear affected by a blow in CPR XVIIA 235.18).

N. GONIS / M. HIRT

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Figures in raised type refer to fragments, small roman numerals to columns. Square brackets indicate that a word is wholly or substantially restored by conjecture or from other sources, round brackets that it is expanded from an abbreviation or a symbol. Greek words not recorded in LSJ, its Revised Supplement, the *Diccionario Griego-Español*, or (for Byzantine texts) the *Lexikon zur byzantinischen Gräzität* are asterisked. The article and (in the documentary sections) *καί* are not indexed.

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COMMODUS

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III. CONSULS

301 ἑταίρεὺς τῶν δεσποτῶν ἡμῶν Φλαυῖνος Οὐάληριος Κωνσταντῖνος καὶ Λικιννῶσι Λικινῖνος Σεβαστῶν τὸ β' [5257 1-2]

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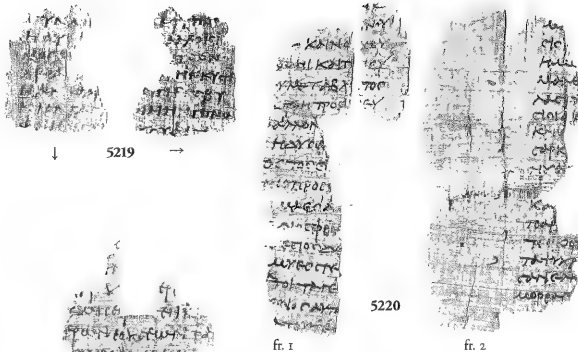
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fr. 1

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5222

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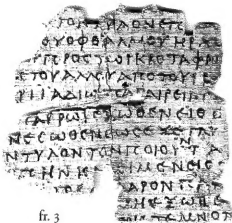
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fr. 1



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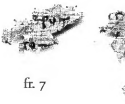
fr. 4



fr. 5



fr. 6



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fr. 8



fr. 9

Fragment of ancient Greek text, possibly a fragment of a larger piece.

5246

Main fragment of ancient Greek text on the left side of Plate X.

5247



Fragment of papyrus with Greek text, likely from a letter or document. The text is written in a cursive hand and is partially obscured by the fragment's shape.

5256

Fragment of papyrus with Greek text, showing a small portion of a larger document. The text is partially obscured by the fragment's shape.

5251

Fragment of papyrus with Greek text, showing a larger portion of a document. The text is written in a cursive hand and is partially obscured by the fragment's shape.

5245

Fragment of papyrus with Greek text, showing a larger portion of a document. The text is written in a cursive hand and is partially obscured by the fragment's shape.

5244



Fragment of papyrus with Greek text, showing a large portion of a document. The text is written in a cursive hand and is partially obscured by the fragment's shape. The fragment is oriented vertically on the page.

5252 (reduced)



